This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

War 5959.16

Harvard College Library

FROM THE

UNITED STATES GOVERNMENT

MEDICAL COMPEND

FOR MASTERS OF THE

NAVAL AUXILIARY SERVICE

(Medicine Box, U. S. N.)

PUBLISHED BY THE

BUREAU OF MEDICINE AND SURGERY

UNDER THE AUTHORITY OF THE
SECRETARY OF THE NAVY

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

War 5959.16

Harvard College Library
June 22, 1916
From the
United States Government.

BUREAU OF MEDICINE AND SURGERY,
NAVY DEPARTMENT,
Washington, D. C., March 22, 1916.

This Medical Compend for Masters of the Naval Auxiliary Service is published for their aid in the knowledge and use of the contents of the Medicine Box, United States Navy, as well as a general guide in the preservation of the health of the personnel under their command.

W. C. BRAISTED,
Surgeon General United States Navy.

Approved:
JOSEPHUS DANIELS,
Secretary of the Navy.

CONTENTS.

	Page.
Chapter 1. The Medicine Box	7
Chapter 2. First-Aid	13
Chapter 3. Special Diseases	34
Chapter 4. Hospital Facilities	70
Chapter 5. Deaths	75
Chapter 6. Quarantine and Disinfection	77
Glossary	91
Index	93

MEDICAL COMPEND FOR MASTERS OF THE NAVAL AUXILIARY SERVICE.

(MEDICINE BOX, U. S. N.)

CHAPTER I.

THE MEDICINE BOX.

The outfit of medicines and medical supplies furnished auxiliary vessels of the Navy having no medical officer or member of the Hospital Corps, consists of (*a*) one medicine box, Navy standard, and (*b*) a box of additional medical supplies in an ordinary packing case. The contents of these boxes with simple directions for their use are given below.

MEDICINE BOX (CONTENTS).

(Medicine case. Tablets. 1-oz. bottles.)

Aloin, belladonna, podophyllin.	Phenacetin (5 grains).
Alkaline (Seiler's).	Potassium chlorate 2½ grains, sodium borate 2½ grains.
Brown mixture (1 dram).	Potassium bromid (5 grains).
Calomel (½ grain).	Quinin sulphate (3 grains), 2 bottles.
Cathartic, vegetable.	Soda mint.
Chlorodyne.	Sodium salicylate (5 grains).
Coryza.	
Dover's powder (5 grains).	

Argyrol.....bot..	2	Collodion.....bot..	1
Aromatic spirits of ammonia.bot..	1	Iodin tincture, 4% .....bot..	1
Beef extract.....bot..	2	Liniment, soap.....bot..	1
Bichlorid of mercury (antiseptic) tablets.....bot..	1	Ointment, aristol and opium.jar..	1
Castor oil.....bot..	1	Ointment, sulphur.....jar..	1

Ointment, zinc-oxid.....jar..	1	Ligature, silk, No. 8, with needle.....tubes..	12
Petrolatum.....tin..	1	"Medical Compend."...number..	1
Picric-acid solution.....bot..	1	Medicine glass.....number..	1
Salts (magnesium sulphate)..tin..	1	Muslin.....yds..	5
Sodium bicarbonate.....can..	1	Packages, first-aid.....number..	6
Bandages, assorted.....number..	36	Penis syringes, glass....number..	12
Basin, dressing, agate...number..	1	Plasters, belladonna.....box..	1
Binders' boards.....set...	1	Plasters, mustard.....box..	1
Camel's-hair pencils....number..	6	Plaster, adhesive (2-inch)..spool..	1
Cotton, hospital.....roll..	1	Spatula, small.....number..	1
Dressing forceps.....number..	1	Thermometers, clinical.number..	2
Gauze.....roll..	1	Tourniquet, rubber, instant, number.....	2
Knife, small (bistoury)..number..	1		

DIRECTIONS, ETC.

Aloin, belladonna, and podophyllin tablets. Laxative, for use in constipation. Dose: One or two tablets taken at bedtime.

Alkaline and antiseptic tablets (Seiler's). For sore throat. Dissolve one tablet in a half glass of water and use as gargle or nasal douche.

Brown mixture tablets (1 dram). For coughs and bronchial affections. Dose: One tablet every hour dissolved on the tongue. Limit, 10 tablets in 24 hours.

Calomel tablets, one-half grain. Cathartic in fevers. Dose: One every hour until five are taken. Should be followed in a few hours or the next morning by a dose of salts (magnesium sulphate).

Cathartic vegetable tablets. Purgative. Dose: One to three tablets.

Poison.—Chlorodyne tablets (contain morphin). Should be used with care. For spasmodic pain. Dose: One tablet; repeat in an hour if necessary. Stop when three tablets have been taken. For diarrhea: One tablet every 3 hours until four tablets have been taken.

Coryza tablets. For commencing colds in head and throat. Dose: One tablet every 15 minutes until four tablets have been taken, then one tablet every 30 minutes for four doses, and then one every hour for four doses. Limit, 12 tablets taken as directed.

Poison.—Dover's powder, 5 grains (contains opium). Should be used with care. Dose: Two tablets.

Phenacetin, 5 grains. For neuralgia or fever. Dose: One tablet, may be repeated in an hour. Stop when four tablets have been taken.

Potassium chlorate and borax. For sore throat: Dissolve on tongue or dissolve tablet in a little water and use as a gargle.

Potassium bromid, 5 grains. For sleeplessness or as a sedative. Dose: Two to four tablets, repeated in an hour or two if necessary.

Quinin sulphate, 3 grains. For malarial fevers. Dose: One to three tablets every 4 hours. Limit, 12 tablets in 24 hours.

Soda-mint tablets. For sour stomach and heartburn. Dose: One every 2 hours dissolved on the tongue.

Sodium salicylate, 5 grains. For rheumatism. Dose: Two tablets every 4 hours. Limit, 12 tablets in 24 hours.

Argyrol. Prepare solution of 1 part of argyrol to 10 parts of water. To be used as injection in gonorrhea (clap). Solution should be prepared in small quantities as it soon deteriorates.

Aromatic spirits of ammonia. For stimulating purposes. Dose: One-half to 1 teaspoonful in a little water.

Beef extract: Two teaspoonfuls in a cup of hot water.

Poison.—Bichlorid of mercury tablets (antiseptic): Dissolve one tablet in a pint of water and use externally as an antiseptic and disinfectant. Great care should be exercised with these tablets. The hands and utensils should be carefully washed after their use with the solution. The solution should never be used in metallic vessels nor on metallic instruments.

Castor oil. Cathartic. Dose: Two tablespoonfuls. Wet the mouth with hot liquid (milk or tea) and give the oil floating in some of the liquid.

Collodion, flexible. For holding on small cotton dressings. (Keep bottle securely closed to prevent evaporation.)

Poison.—Iodin tincture, 4 per cent. External use only. For disinfecting wounds. Apply with hair pencil or cotton on match.

Liniment, soap. External use only. For lumbago and rheumatic pains. Apply locally with rubbing.

Ointment of aristol and opium. For painful sores and wounds. Apply spread on gauze.

Ointment, sulphur. For itch and ringworm. Rub on affected part.

Ointment of zinc oxid. For eczema, etc. Apply locally.

Petrolatum (vaseline). For sunburn, chapped hands, etc.

Poison.—Picric-acid solution, about 1 per cent. For scalds and burns. Wet strips of gauze with this solution, apply directly to

burned surface, and lightly secure with bandage. Dressing should be kept moist with the solution.

Salts (magnesium sulphate). For constipation. Dose: One to two tablespoonfuls dissolved in half-glass of water.

Sodium bicarbonate (baking soda). For burns. Turn top of can to open holes and sprinkle well over surface, cover with gauze, and bandage.

Bandages, gauze.

Basin, dressing, agate.

Binder's boards. Splinting for fractures.

Camel's-hair pencils. For application of tincture of iodin.

Cotton, hospital. For dressings.

Dressing forceps.

Gauze for dressings.

Knife, small. For opening boils. Should be thoroughly disinfected before use.

Ligature, silk, with needle in tube. For sewing up wounds.

Medicine glass for measuring.

Muslin, bleached. For preparation of bandages.

Packages, first-aid. Directions on package.

Penis syringes, glass. For injection of argyrol.

Plasters, belladonna. For rheumatic pains. Also see directions on box.

Plasters, mustard. See directions on box.

Plaster, rubber, adhesive. Two-inch spool. For holding dressings in place.

Spatula, small. For spreading ointments.

Thermometers, clinical, in case.

Tourniquets, instant rubber. For stopping flow of blood from wounds, or constricting circulation.

The additional supplies in PACKING CASE are largely supplementary, and are as follows:

MEDICINES, ETC.

Poison.—2 bottles picric-acid solution, 500 c. c. For burns.

3 bottles collodion flexible.

3 tins magnesium sulphas (salts).

4 tins petrolatum (vaseline).

6 bottles ricini oleum (castor oil).

2 bottles saponis linimentum (soap liniment).

4 boxes sinapis emplastrum (mustard plasters).

2 boxes sodium bicarbonate (perforated-top tin can).

TABLETS.

1 bottle acetphenetidin (phenacetin).
1 bottle aloin, belladonna, and podophyllin.
2 bottles cathartic vegetable.
Poison.—1 bottle lead and opium. (One tablet for severe pain or diarrhea. Repeat in 2 hours if needed.)
2 bottles glycyrrhiza mist. comp. (Brown mixture).
3 bottles quinin sulphate, 0.2 gm. (3 grains).
1 bottle sodium salicylate.

HOSPITAL STORES.

12 bottles extract of beef.

SURGICAL INSTRUMENTS.

1 set catheters, soft rubber.
1 syringe, fountain.
1 thermometer, clinical.
2 instant rubber tourniquets.

SURGICAL DRESSINGS.

3 dozen bandages, gauze, assorted.
6 bandages, suspensory.
6 rolls cotton, plain, absorbent.
1 roll gauze, plain, absorbent.
2 spools plaster, adhesive.

DISPENSARY FURNITURE.

2 scissors.

HOSPITAL FURNITURE.

2 medicine glasses.
1 bag, hot-water, rubber.
1 bag, ice, rubber.

Supplies listed above may be procured as required, by requisition Form 4 of the Bureau of Medicine and Surgery. Requisitions, when approved, will be filled by the naval medical supply depot most convenient to the ship; that is, if in Atlantic waters, by the depot in Brooklyn, N. Y.; if in Pacific waters, by the depot at Mare Island, Cal.; if in the Philippines or on the Asiatic station, by the depot at Canacao, P. I.

Advantage should be taken of opportunities, when in the vicinity of a supply depot or when at navy yards or in dry dock, to replenish the stock of medicines, etc.

A supply of requisition Form 4 may be secured from any supply depot, but if this form is not available request may be made by letter addressed to the Bureau of Medicine and Surgery. Requisitions should be limited to the articles listed above and should be arranged by classes and correspond in amount with packages as indicated.

CHAPTER II.

FIRST-AID.

The slogan "Safety First" should be uppermost in the minds of those who, by their vocations in life, are liable to frequent or severe accidents.

The all-important thing is to prevent accidents if possible, but if these unfortunately do occur the layman should not attempt to rival the doctor, but should aid him through emergency measures, and thus put the patient into his hands with a better chance of recovery than would have been the case if prompt and efficient emergency treatment had not been rendered. It has been said in substance that the future welfare of the injured depends upon the manner in which first-aid has been rendered.

The conditions outlined in this chapter will be those which are liable to occur to seafaring men, and the treatment will be that which can be applied by the layman after a little study and practice. The vessels of the Naval Auxiliary Service are frequently in isolated places far from the call of a doctor, and it behooves the most intelligent members of the ship's company to become, as far as possible, efficient in first-aid.

In the presence of an accident the "first-aider" must take charge, if the services of a doctor can not be obtained, and he should observe the following general rules:

1. Be quiet and cool, don't get excited, and do the best you can with the facilities at hand.

2. Give the patient plenty of air; keep the crowd from gathering around, many of whom will be there only for curiosity's sake. Keep only those around you whose assistance you may need.

3. Lay the patient on his back, with head lower than the body, except in cases with marked flushing of the face, when the head may be raised a little on folded clothing or other suitable material.

4. If there is vomiting, turn the head to one side so the vomited matter may easily escape from the mouth, thus eliminating the risk of its going into the windpipe and choking him.

5. If the patient is unconscious, do not try to force him to drink, for he can not swallow, and you may choke him.

6. Do not move patient from place of injury unless his condition justifies it. Often the injury will have to be attended to before it is safe to move him.

7. Loosen tight clothing, which may be present around the neck, chest, and abdomen.

8. If stimulants are needed, whisky and brandy are not always indicated. In fact, there are conditions in which they do harm. Aromatic spirits of ammonia, if on hand, is safer for general use.

9. In order to treat the injury the part has to be exposed and the clothing, in some cases, has to be removed. This should be done in such a manner as to disturb the patient as little as possible. The outer clothing should be ripped up the seam; the underclothing torn or cut. The sound side should be undressed first. In removing the shoes it is often necessary to cut them off when they can not be removed otherwise without causing great pain or increasing the injury.

10. An injured person often wants a drink of water. If conscious and able to swallow, a few sips of cold water will be very refreshing.

11. If several injuries are present, care for the most severe one first.

12. Don't put your fingers into the wound; they carry germs, and you will infect the wound.

THE RESUSCITATION OF THE APPARENTLY DROWNED.

The indications in treating one apparently drowned are to remove the water from the lungs, to make the patient breathe, and to stimulate the weak heart.

Various methods for the production of artificial respiration have been described, but the one that is considered the best, namely Schäfer's, will be the one outlined here.

Schäfer's description of his method, as quoted by Crile, is in substance as follows:

> The subject, whether a drowned person or not, is allowed to lie prone, *i. e.*, face downward, no preliminary manipulation of the tongue being required. The operator kneels or squats either across or on one side of the subject, facing the head, and places his hands close together upon the back of the subject over the loins, the fingers extending over the lowest ribs. By now leaning forward upon the hands, keeping the elbows extended, the weight of the operator's body is brought to bear upon the subject, and this not only compresses the lower part of the chest but also the belly upon the ground, the pressure being fairly equally distributed. The result of this is that not only is the chest diminished in extent from before back, but, owing to the pressure which is communicated to the belly, the belly contents are compressed and tend to force the muscle partition between the chest and belly up, so that the chest is diminished in capacity from above down. The pressure is applied not violently but gradually

during about three seconds, and is then released by the operator swinging his body back, but without removing his hands. The elasticity of the chest and belly causes these to resume their original dimensions, and air passes in through the windpipe; after two seconds the process is again commenced, and is continued in the same way, the operator swinging his body forward and backward once every five seconds, or about 12 times a minute, without any violent effort and with the least possible exertion.

This last condition, viz., the absence of muscular exertion other than that involved in swinging forward and backward, renders it possible to continue the process without fatigue for an indefinite time. Its advantages in drowning cases over a method which involves the position on the back are sufficiently obvious, for with it there is no risk of obstruction by water or slime or the contents of the stomach. These can not accumulate in the throat, but must come away by the mouth, and the tongue, instead of falling backward as in the position on the back, falls forward and is unable to produce obstruction.

When respiration has been established and the patient is able to swallow, stimulants may be administered, consisting of a little warm coffee or whisky. The patient should be removed to a warm place, his wet clothes removed, body should be dried and rubbed, then wrapped in blankets surrounded by hot-water bags. The patient should be kept quiet and carefully treated, and if signs of collapse appear renewed effort should be made. Systematic rubbing of the skin and muscles greatly assists in promoting the circulation of the blood.

Before commencing any artificial respiration see that all clothing or other constrictions about the neck, chest, and abdomen are loosened.

Do not get discouraged at the slow results that sometimes happen when resuscitating the apparently drowned. You often have to continue a long time before signs of life are apparent. Do not discontinue your efforts until you are certain that all chance is lost. Sometimes even after several hours' work recovery takes place.

In order to prevent drowning every person should learn the art of swimming and how to keep afloat for a sufficient length of time to allow assistance to effect rescue. In rescuing a drowning person the rescuer himself should be a fairly strong swimmer and have a knowledge of the different conditions that he will have to encounter. If possible he should remove most of his clothes, especially the shoes. He should reassure the drowing man that help is at hand. The drowning man should be approached from the rear, seized by the hair if possible, and turned upon his back, the rescuer assuming the same position, and with the drowning person's back to his stomach he swims for the shore or floats until a boat or other assistance

comes to him. If the drowning person struggles, it may be necessary to render him unconscious by a blow in the face before he can be handled.

RESUSCITATION FROM GAS POISONING.

In treating this condition the patient needs plenty of fresh air. Artificial respiration as described under drowning should be started at once. Stimulants and rubbing are also helpful.

RESUSCITATION FROM ELECTRIC SHOCK.

A person accidentally shocked by electricity is not necessarily killed. He may be only stunned or the breathing stopped momentarily. The following instructions should be followed:

(1) Break the circuit immediately.

(2) Separate the victim from the live conductor by quick motion, using some nonconductor, as dry rope, dry coat, or dry board. The victim's clothes if dry may be used to pull him from the live wire. Use nothing metallic.

(3) Beware of touching the heels or soles of his shoes.

(4) Do not touch his body with your hands unless they are covered with rubber gloves, mackintosh, dry clothing, or other nonconducting material.

(5) If you have to cut a live wire, use an ax or hatchet with a dry wooden handle, or insulated pliers.

After you have removed patient from wire, institute artificial respiration by the Schäfer method. Attend to the burns as described under treatment for burns. Apply warmth to body, rubbing skin and muscles and giving stimulants if patient can swallow.

BITES FROM DOGS OR CATS.

If bitten by a dog or cat let the wound bleed as freely as possible; encourage this by milking the part. Some advise sucking the wound, but this is not altogether safe, for if you have a cut or abrasion in your mouth you may infect yourself. Cauterize the wound with a hot poker or carbolic acid, and dress with an antiseptic dressing (alcohol, bichlorid of mercury, or tincture of iodin). Keep the cat or dog under observation to see whether or not it shows signs of madness. If it does, kill it, pack the body in ice, and send it to some near laboratory for examination. In the meantime the person bitten should, as soon as possible, be landed at the nearest place for the Pasteur treatment for the prevention of rabies.

A tourniquet above the wound is advised to limit the amount of poison entering the system. If this is done, the part should be care-

fully watched and if it becomes blue the constriction should gradually be released; after circulation has been reestablished the tourniquet may be reapplied. Strong ammonia may be used to cauterize the wound.

SNAKE BITES; STINGS BY INSECTS.

The treatment of the wound is about as above. If shock is present and stimulants are needed, whisky, brandy, or aromatic spirits of ammonia may be administered.

UNCONSCIOUSNESS AND INSENSIBILITY.

If the person is unconscious and the cause is unknown, let him rest flat on his back. If he is pale and surface of body is cold, apply warmth to body and hold smelling salts or a little ammonia under his nose. If the surface of the body is very hot, cold water may be applied to the head.

Unconsciousness is usually due to disease of the brain or heart, general diseases, injuries to the head, or to some poison.

FAINTING.

This results from diminution of blood in the brain, due to many causes. The person gets paler and paler; there is a sinking feeling, and he falls unconscious. This often can be prevented by placing the patient in a chair with his head forward between his legs lower than his hips. But after its occurrence patient should be laid flat on his back with head low; loosen clothes and give plenty of fresh air; a little ammonia held under nose will often revive him. After recovery give whisky or aromatic spirits of ammonia.

EPILEPTIC FITS.

The patient usually utters a cry, falls suddenly unconscious, has convulsions, foams at the mouth, and bites his tongue. After convulsions cease he passes into a deep sleep and remains in that state for several hours.

During the convulsions the only thing to do is to try to prevent him from hurting himself. Something suitable (a piece of wood or cork covered with a handkerchief) should be put between his back teeth to keep his mouth open so he can not bite his tongue. Do not let this gag fall down his throat. A man known to have fits should not be retained aboard ship. He is unfit for the service.

POISONS.

Prevention.—Keep all poisonous drugs and solutions locked up. Label all bottles with their contents and a **Poison** label. See that all

bottles are properly labeled and no drug is put in them that does not belong there.

In treating patients for poisoning the indications are:

1. To neutralize the poison (give antidote).
2. To get rid of the poison from the stomach (produce vomiting).
3. To prevent further absorption into the system of the poison that may have remained in the stomach.
4. To cause elimination from the system of the poison that may already have been absorbed.
5. In case of collapse to sustain and support the body (by stimulants, etc.).

Unknown poison.—Produce vomiting. This can be done by giving 2 teaspoonfuls of mustard in a cup of warm water; can also be induced by 2 teaspoonfuls of common salt in cup of warm water; soapsuds; putting fingers down throat; and tickling back part of throat with a feather. Syrup of ipecac, 1 tablespoonful in cup of tepid water, is also a good emetic. After vomiting give whites of raw eggs, or milk, or flour in water. If signs of collapse are present give hot tea, coffee, and other stimulants. Keep body warm and rub extremities.

Bichlorid of mercury.—Give whites of raw eggs. If these are not on hand give milk, or raw meat chopped finely in water or milk. Then cause vomiting, and later give strong tea, flour in water, flaxseed tea, or barley water. Keep warm, and if stimulants are necessary give strong coffee.

Strong metallic acid (as nitric, sulphuric, hydrochloric, etc.).—Give no emetic. Neutralize the poison by giving alkalis, such as large quantities of water or milk with chalk, borax, baking soda, soapsuds, or plaster; raw whites of eggs in water; later flaxseed tea, gruel, or starch.

Carbolic acid.—Give equal parts of grain alcohol and water. If alcohol is not on hand, give brandy or whisky. If none of these are at hand, give vinegar, raw whites of eggs in water, or soapsuds; then produce vomiting; then give solution of Epsom salts. Do not give oils. Milk, gruel, or flaxseed tea may be given later. If there is evidence of collapse, apply heat to body, give hot coffee and stimulants, and, if breathing stops, apply artificial respiration.

Alkalis (lye, etc.).—Give mild acids, such as vinegar, lemon or orange juice, hard cider. Whites of eggs may be given later. Assist vomiting by large amount of tepid water; then give something soothing, such as oil, gruel, barley water, milk, etc.

Opium, laudanum, paregoric, heroin, morphin.—Give potassium permanganate solution (one-third teaspoonful in pint of water) or hydrogen peroxid (2 teaspoonfuls in pint of water); then give emetic. Give strong tea or coffee; if patient is unable to swallow inject into bowel. Keep patient awake by applying cold water to head

and face, slapping him with wet towel, and walking him about. Give no wines or liquors. When respiration is slow and irregular, apply artificial respiration.

Arsenic, Paris green, rough-on-rats.—The best antidote, if it can be obtained, is 2 teaspoonfuls of magnesia, 1 tablespoonful of tincture of iron in a cup of water; take as one dose. Give an emetic; the whites of raw eggs and a large amount of greasy or salty water may be given. Lime water, or plaster in water may be given. Later gruel, sweet oil, starch and water, and castor oil (1 ounce) may be given.

Strychnin (nux vomica).—Give strong tea, then an emetic. If available give, next, bromid of sodium or potassium, one-half teaspoonful (30 grains) in water. Give Epsom salts. Apply artificial respiration if necessary. Remove patient to a dark room, keep quiet, avoid sudden noises, etc.

Ptomaine poisoning.—Results from eating bad meat, fish, or other articles of food.

Treatment: Give emetic, then give a purge, castor oil or Epsom salts. If there is much pain in stomach apply hot-water bag or hot cloths. Give stimulants if necessary. Give no food until symptoms have disappeared. Should be careful with diet for several days after recovery.

SHOCK.

As almost all injuries cause a certain amount of shock, it is well to know what it is and how to treat it. It is a profound depression of the nervous system and is sometimes called collapse, exhaustion, or prostration. In this condition the face is pale, expression is anxious, eyes dull, and pupils enlarged, skin cold and clammy; is listless and takes no interest in surroundings; pulse is rapid and weak.

Treatment: Place on back with head low, administer stimulants, hot coffee, tea, aromatic spirits of ammonia, whisky, or brandy. Keep up body heat, wrap in warm blankets, apply hot-water bags, and rub extremities toward body to stimulate circulation.

BURNS AND SCALDS.

Burns result from exposure of body to dry heat, while scalds follow exposure to moist heat, as hot water, steam, etc. These are very serious accidents, attended, at times, with marked shock, and their danger to life depends more upon the extent of the body involved than the degree.

For convenience burns are divided into three degrees, as follows:

1. Reddening of the skin.
2. Reddening of the skin with formation of blisters.
3. Charring and destruction of the deeper tissues.

There is usually considerable pain with burns, and, if burn is extensive, marked shock.

Treatment: Exclude air from the part. This may be done by making a paste with water and baking soda, starch, or flour. Smear the paste on a pad of sterile gauze, apply to burn, and hold in place by a light bandage. An excellent dressing is a solution of ordinary washing soda (2 tablespoonfuls in a pint of warm water). A salt-solution dressing is also good (a teaspoonful of common salt to pint of warm water). Do not use strong antiseptic on burns. Soaking the part in warm water is itself good and is very often useful to soak off clothing sticking to a burned surface. If blisters have formed and are painful they may be opened by passing a sterile needle through them and allowing the fluid to escape. Do not destroy the skin raised by a blister. The needle used may be sterilized by burning in a flame. Do not put cotton next to a burn; it sticks and causes trouble. In dressing burns take pad of sterile gauze, soak in the solution, apply to part and hold in place by bandage. In removing the dressings it is often necessary to soak them off, and warm water or one of the solutions mentioned above may be used for this purpose. An excellent dressing for burns, if at hand, is a saturated solution of picric acid. Be careful not to get it on clothing, because the stain is hard to remove. Antiseptic ointments, such as boric acid or aristol and opium, are soothing and good at times, but oils, greases, etc., as a rule are not advised, because they are liable to favor infection.

The burned part should be put at rest, and if there is much pain 20 drops of laudanum in a little water may be given, or 1 to 2 chlorodyne tablets, repeated in two hours if necessary. There is liable to be considerable shock, so don't forget to treat it. A person badly burned should be seen by a doctor as soon as possible. If a person is extensively burned it may be impossible to cover him with bandages. A sheet soaked in any of the above-mentioned solutions and wrapped about the person is a convenient and sometimes only way to handle the case. The early treatment of burns caused by acids is to apply a dressing soaked in an alkaline solution, such as baking soda, washing soda, limewater, soapsuds, etc.

Burns caused by alkalies are treated by acid solutions such as vinegar, lemon juice, etc. Burns caused by carbolic acid should be treated freely and dressed with pure grain alcohol.

EFFECTS OF COLD.

Freezing.—If expecting to be exposed to the cold for a long time, endeavor to prevent any ill effects therefrom, but if freezing does occur there is marked depression and cautious treatment is necessary.

Treatment: The object is to restore gradually the body warmth. The patient should at first be in a moderately cold room, and with

woolen cloths soaked in cold water or snow, the limbs should be gently and systematically rubbed toward the body. When the circulation becomes active the cloths should be soaked in warmer and warmer water. When patient can swallow give stimulants, such as hot coffee or tea, whisky, brandy, or aromatic spirits of ammonia. The patient should not be brought into a warm room, placed before an open fire, etc., until the circulation of the blood has been reestablished and is active, as evidenced by increased force of the pulse, increased warmth, and color to the skin.

Frostbite.—Parts most involved are those where circulation is sluggish, as ears, tip of nose, fingers and toes, etc.

Treatment: Gradually restore normal temperature. Soak part in cold or ice water. Rub gradually with woolen cloth soaked in cold water, ice water, or snow. Gradually increase warmth of water as circulation becomes reestablished and active in part, as evidenced by more warmth to skin and better color. If the frostbite is an old one and the skin has turned black or commenced to scale off, it is useless to attempt to restore the vitality by friction; just apply a little cotton and hold in place by a bandage.

RUPTURE (HERNIA).

As encountered by the layman this is a swelling in the groin. Rupture makes its appearance suddenly after exertion and is evidenced by pain and swelling.

Treatment: Let patient take a hot bath and go to bed lying on his back. By so doing the rupture will often reduce itself. After which a compress of gauze should be applied and supported by a snug bandage. Keep patient in bed for several days and do not let him move until he has seen a doctor.

If the rupture does not reduce itself, a little manipulation may bring it about, but it is not wise for a layman to attempt this, as the bowel is very delicate and it may be damaged by rough or unskilled handling. The patient should see a doctor as soon as possible.

STRAINS.

Condition caused by overstretching the muscles. The muscles of the back and shoulders are the ones most often involved.

Symptoms: Pain, stiffness, lameness, and sometimes swelling.

Treatment: Rest, hot applications, massage gently with liniment.

SPRAINS.

Condition caused by a tearing or stretching of the ligaments and capsule about a joint. It is at times hard to distinguish from a fracture and should be cautiously handled. It often takes a long time for complete recovery.

The joints most often involved are the ankle, knee, wrist, elbow, and shoulder.

Symptoms: Pain, redness, swelling, loss of function, and often shock.

Treatment: Soak the joint in water either as hot as patient can stand or cold as you can get it, not tepid water. If it is a joint of the lower extremity, put patient to bed, elevate the limb on a pillow or other support.

If joint is bandaged, do this loosely, because there is liable to be considerable swelling, which may cause damage. When pain and swelling have subsided, gently massage the joint. Let patient get about gradually on crutches. If sprain is in upper extremity the treatment is the same, except the patient need not stay in bed. The joint is put at rest and supported either by a sling or splint.

If shock is present, it should be treated.

HEMORRHAGE.

The heart may be considered as a pump, which by its beats forces the blood to all parts of the body through a series of vessels. The arteries carry the blood from the heart; the veins return the blood to the heart. The capillaries are a network of smaller vessels situated between the arteries and veins.

Remember that in the character of wounds that you will encounter, death from bleeding is very rare. Bleeding is dangerous when a large artery is injured. In the majority of cases of bleeding all that will be necessary to do is to put a gauze compress over the wound and hold it in place by a firm, snug bandage; put the injured part at rest; if arm or leg, elevate; keep the patient quiet and give plenty of fresh air. Very hot water applied will at times be effectual.

If, however, bleeding is profuse and life seems endangered it may be necessary to apply some kind of a tourniquet. Arterial bleeding is most dangerous and is recognized by the fact that the blood is bright red in color and is expelled in jets.

In venous bleeding the blood is dark blue and flows in a constant stream.

Capillary bleeding occurs as a general oozing and is of a brick color.

Tourniquets may be improvised, as a clean handkerchief bandage, soft-rubber tubing, or other similar materials, encircling the limb and tied sufficiently tightly to stop the flow of blood.

Tourniquets in the hands of laymen are extremely dangerous, and should not be used unless absolutely necessary, which is rare. When used the part should be carefully watched, and if signs of extreme

swelling or bluish color appear the tourniquet should be loosened. A tourniquet should not be left on at one time more than an hour. It should then be loosened, and if necessary retightened. The arms and legs are the only parts to which tourniquets should be applied.

Arterial hemorrhage.—Apply the tourniquet between the heart and the wound, generally speaking above the wound. Place a compress over the wound and hold by snug bandage. Put part and patient at rest.

Venous hemorrhage.—Apply tourniquet on far side of wound from heart; generally speaking, below the wound. Then treat as above.

Capillary oozing.—Pressure by compress and bandage applied over the wound is all that is usually necessary.

Bleeding can often be stopped by pressure from the thumb or anything else suitable over the injured artery or vein as the case may be.

It is often difficult to determine whether the blood is from an artery or vein. In such a case, if a tourniquet is necessary, apply it above the wound, and if injury is in arm or leg apply your compress over the wound, hold it with a snug bandage, and put part at rest, elevated. Remember that tourniquets, as a rule, are condemned and should not be used by the layman unless necessary, which will be rarely the case.

The main arteries in the body which play a part in external hemorrhage are four—namely: The *carotid*, which supplies the head; the *subclavian*, supplying the middle of the shoulder; the *brachial*, running along the inner side of the arm and supplying the arm, forearm, and hand; and the *femoral*, running along the inner side of the thigh and supplying the thigh, leg, and foot. The pulsations in these arteries should be studied, as pressure at the correct spot on them will often check external hemorrhage in the extremities, neck, or head.

Internal hemorrhage.—Caused by wounds usually of abdomen or chest. No external evidence of bleeding. Symptoms are those of shock. Treatment: Rest in bed; ice bag or cloth to chest or abdomen. Do not give stimulants unless patient becomes very weak.

Nose bleeding.—Place patient in chair with head thrown back. Apply cold cloths to back of neck. Place a small fold of paper well up between the upper lip and gum. Finely crushed ice on gauze or thin cloth applied to bridge of nose is often effective. May snuff salt water up nose. If it still persists small strips of gauze with ends hanging out may be pushed up the nostrils. Keep patient quiet.

BANDAGING.

Those bandages most frequently used are the—

1. Roller bandage.
2. Triangular bandage.
3. Many-tailed bandage.

Bandages are used (1) to hold dressings in place, (2) to hold splints in place, (3) to check hemorrhage, (4) as slings.

Materials most commonly used for bandages are (1) gauze, (2) muslin, (3) flannel, (4) plaster. The gauze and muslin bandages are the two that the layman will be called upon to use, generally gauze. Good bandaging comes by practice, and all that will be expected of the layman is the application of the bandage so it will accomplish its object, be comfortable to the patient, and do no damage. Bandage uniformly, firmly, but not tightly. In bandaging arm or leg commence from below and bandage up. Leave the tips of fingers and toes unbandaged, so the effect of the bandage on the circulation can be watched. In bandaging a part that is liable to swell, bandage loosely, so if the part should swell the bandage will not be too tight and constrict. Do not apply a bandage when wet, because when it dries it will shrink. In bandaging apply the bandage to the part in the position in which the latter is to be carried during treatment. A bandage should not be put on under a splint, but always over it. The triangular bandage is probably the easiest for general application by the first-aider. However, the roller bandage is supplied to auxiliary ships and is the one that probably will be most used by first-aiders of these vessels. The triangular bandage is usually made from unbleached cotton cloth, though any strong cloth will do, as bed sheets, pillow covers, napkins, handkerchiefs, etc.

A triangular bandage is made from a piece of cloth about 34 inches square. It is folded diagonally and cut across in the fold. For methods of application see illustrations printed on the bandage.

Roller bandages.—These are furnished already prepared, but in an emergency where none are at hand they can be improvised from sheets, pillow covers, muslin, flannel, etc. Those that are furnished come in different widths and lengths. The size to be used depends upon the part to be bandaged.

For the fingers and toes the one about three-fourths inch wide should be used.

For the arm and head use one about 2½ inches wide.

For leg and thigh use one about 3 inches wide.

For the chest and abdomen use one about 4 inches wide.

For general use the most frequently used bandage is about 2½ inches wide and about 4 yards long.

The roller bandage is applied by holding the roller in the right hand and the free loose end in the left, and the outer side of the bandage is applied on the place where it is desired to start the bandage. In securing the bandage the free end is turned back and pinned, preferably with a safety pin, or the end may be ripped up the middle a sufficient distance, then a knot tied to prevent further ripping, and the ends carried around the limb in opposite directions and tied.

BRUISES AND CONTUSIONS.

These are conditions where the soft tissues below the skin are injured and torn, the skin itself remaining intact. There is hemorrhage under the skin, but the blood does not escape.

Symptoms: Pain, loss of function, swelling, and discoloration (red, purple, black, green, and yellow).

Treatment: Put the part at rest. Apply cold applications, except in the feeble or aged, where hot applications are better. A 10 per cent alcohol solution in water or a saturated solution of Epsom salts make good dressings. Soak pad of gauze in solution used and bandage snugly but not too tightly.

WOUNDS.

These are usually divided into the following classes:

1. Incised.
2. Lacerated.
3. Punctured.
4. Poisoned.
5. Gunshot.

Incised wounds are those caused by sharp instruments, such as razor, sharp knives, glass, etc.

Lacerated wounds are those caused by a blunt instrument, by machinery, falling block, etc.

Punctured wounds are those caused by deep, pointed instruments, such as a nail, dagger, bayonet, etc.

Poisoned wounds are those caused by bites of animals, stings of insects, etc.

Gunshot wounds are self-explanatory.

Symptoms of wounds: Local—(1) pain; (2) hemorrhage; (3) loss of function; (4) gaping of edges. General—shock.

The dangers from wounds are hemorrhage and infection. As we have seen, grave hemorrhage is usually rare, and a compress and bandage is usually all that is necessary to check it. Infection is the main danger. By this is meant the introduction into the wound of

germs which will cause pus and later trouble. Our main effort in treating wounds is to prevent infection.

Treatment of wounds.—Prevent infection. Do not touch the wound with your dirty fingers and do not let the patient do so with his. If wound is not extensive and there is very little bleeding or dirt or foreign particles in it, apply into and for about 1½ inches distance around the wound tincture of iodin, either in full strength or diluted one-half with water or alcohol. Then apply to the wound a sterile-gauze compress and hold in place by a snug bandage.

If the part injured is a hairy part of the body, it should be shaved before treated. If iodin is to be used, it would be better to shave the part dry.

Before dressing a wound the dresser should see that his hands are surgically clean. To render them so scrub for five minutes with a nail brush, hot water, and soap. Rinse off soap with hot water, then soak hands in hot bichlorid of mercury solution (1–1000), carbolic acid solution (1-40), alcohol, or other antiseptic solution. If nothing else is at hand use whisky or brandy. If none of the above antiseptics are at hand all that can be done is to thoroughly scrub your hands with hot water and soap for at least 10 minutes, and do not put your fingers into the wound unless absolutely necessary.

If foreign particles are in the wound they may be picked out with a pair of sterile forceps. If it becomes necessary to wash a wound to get the dirt out, use sterile hot water, soap, and a pad of sterile gauze as a sponge. A boiled common-salt solution (1 teaspoonful to a pint of water) is a very good one to wash and dress wounds with. Be sure your water is sterile before applying it to the wound. (Should boil at least 20 minutes.)

The dressing contained in the first-aid packet, although intended for a gunshot wound of small caliber, makes an excellent dressing for any wound it will cover, and may be applied after the wound has first been treated with tincture of iodin if on hand.

In case of a jagged and bruised wound, with its edges far separated, strips of gauze should be laid in the wound before being finally dressed.

It is better for the layman not to sew a wound, but at sometime or other it may be necessary. Sometimes in wounds of the scalp the best way to check the hemorrhage is to bring the edges of the wounds together by suture. Again it may prevent marked scarring. However, this should not be given much consideration by the aider, except for cosmetic purposes on exposed parts of the body. If you do suture a wound, remember that your hands, needles, all instruments, etc., that come in contact with the wound should be sterile.

The stitches should pierce the skin about one-eighth inch from the edge of the wound, and they should be placed about one-half

inch apart, tied, and cut off. They should not be tied too tightly, only sufficient barely to bring the edges together. It is better not to close the wound entirely but to leave a little opening at its lower end where a little wick of sterile gauze may be inserted for drainage. If after stitching a wound it becomes red, swollen, and painful, or there is evidence of pus forming, the stitches should be removed and the wound left open. Remember that occasions will be few where a layman will have to stitch a wound.

In all wounds put the part at rest and treat shock if present.

To treat gunshot wounds see instructions in first-aid packet.

Sterilizing dressings.—An easy and convenient way is by boiling in plain water for about 20 minutes. If a dry dressing is desired it can be sterilized by placing in a hot oven for about 20 minutes and removed just before scorching. Sterile dressings can be bought. The contents of a first-aid packet are sterile.

Sterilizing instruments.—The scissors, forceps, knives, needles, etc., used in dressing wounds should be sterilized by boiling in plain water for 15 to 20 minutes. If on hand, a little soda added to the water will greatly assist the sterilization and protect the instruments. It is better to protect the blade of the knife by wrapping a little cotton around it before boiling.

Remember that in dressing wounds you apply your pad of sterile gauze, then your bandage. In large wounds or those from which there is liable to be considerable oozing it is probably better after the pad of sterile gauze has been applied to apply several layers of absorbent cotton, then bandage. Do not put the cotton next to the wound.

DISLOCATIONS.

These are injuries to joints; the head of a bone has slipped out of its socket.

Causes: (1) From a blow or fall; (2) muscular action.

Symptoms: Pain, swelling, loss of function, limited motion, and the head of the bone is noted as out of its usual place. The limb may be lengthened or shortened, according to the way in which the dislocation has taken place.

Treatment: The proper treatment is reduction and retention by some means of immobilization.

It is better for a layman not to attempt reduction except, perhaps, in dislocations of the fingers and lower jaw. By unskilled attempts at reduction a layman may cause considerable damage to the nerve vessels and soft parts.

Put the part in a position most comfortable to the patient. The joint should be surrounded with cotton and a bandage applied, not too tight, and then supported. The patient should be kept as quiet

as possible. If the joint involved is the shoulder, elbow, hip, knee, or ankle, the patient should be kept in bed. If the joint is painful and greatly swollen, hot or cold applications may be applied. A sling makes a good support to the shoulder, elbow, and wrist joints. If shock is present treat it. Have patient see a doctor as soon as possible.

SPLINTS.

Before considering fractures it becomes necessary to know something about splints, the correct application of which is so essential in the treatment of fractures.

We understand by a splint a more or less stiff support that will immobilize a fractured bone or a joint. It can be made from pieces of wood, broom handles, cardboard, wire netting, rolls made of blankets, pillows, rifles, swords, bayonets, etc. The material should be rigid enough to keep the parts in position. The splints should be long enough to prevent movements in the nearest joints and as wide as the limb to which applied. They should be well padded with cotton or other soft material, as wool, oakum, flannel, etc.. before being applied. The padding should extend well over the side of the splint. After splint has been well padded and applied to the limb it is held in place by a snug bandage. The bandage should not be applied too tightly, and if pain and swelling occur it should be loosened.

FRACTURE (BROKEN BONE).

Causes: (1) Direct violence, (2) indirect violence, (3) muscular action.

Symptoms: (1) History of injury, (2) pain, (3) swelling, (4) loss of function of parts, (5) usually shortening, (6) excessive mobility (movement) where there should be none, (7) crepitus or grating of the ends of bone.

Varieties:

Simple fracture, where the skin is intact and there is no external wound.

Compound fracture, where the skin is broken and the external wound communicates with the fractured bone.

Complete fracture, where the break extends through the entire bone.

Incomplete fracture, where the break is not entirely through the bone.

Treatment: Along general lines the thing to do is to set the bone and hold it in place by means of splints. A broken limb should be handled as gently as possible. It is usually best not to move patient, especially if break is in lower extremity, until splint has been ap-

plied. In handling a fracture the limb should be grasped above and below the seat of fracture.

To treat fracture, say of the arm or leg, grasp the limb above and below the seat of break, make gentle extension and counterextension in line of body, and while held in that position by an assistant splints should be applied. Observe the precautions mentioned under the heading of splints. After application of splints the limb should be supported and elevated over pillows, clothes, sheets, etc. After application do not remove splint unless it becomes loose or shows evidence of being too tight, etc. Let patient see a doctor as soon as possible.

Compound fracture.—Dress the wound, then apply splint; splint should be so arranged that wound can be dressed if necessary. In all fractures you may have to treat shock. Remember the one great thing in treating fractures is to keep the bone at rest, so do not move the limb or let the patient move it without reason.

SPECIAL FRACTURES.

Fracture of skull.—These are very serious injuries. Apply sterile dressing to wound. Place patient in lying position with head slightly elevated. May have to treat shock, but do not give stimulants unless patient is very weak.

Fracture of nose.—Treatment: Put bones in natural position. Put small compress of gauze on each side of nose, then a piece of adhesive plaster across nose from cheek to cheek. If adhesive plaster is not at hand, put bandage across nose and around head. Do not tie too tightly.

Fractured back.—Keep patient still and quiet on his back. Treat shock.

Fractured lower jaw.—Treatment: Raise the broken bone and bring lower teeth against upper and hold there by a bandage carried under the chin and tied over the head. The mouth should be kept clean by a little warm water, plain, or to which a little soda or salt is added, if on hand. The patient will have to subsist, for a while, on liquid food through a tube.

Fractured collar bone.—Apply a pad of gauze in the armpit of the injured side. Support the arm in a sling with the forearm at right angles to the arm and across the chest.

Fracture of rib.—Keep patient quiet in bed. With arms over head and chest emptied of air, apply snugly a wide roller bandage or adhesive straps around chest, the straps as indicated for pleurisy, page 52.

Fracture of upper arm.—Straighten so as to put in natural position. Secure two splints (flat wood shingle, cardboard, etc.), one to extend from shoulder to elbow, the other from armpit to elbow.

Pad well with cotton, apply one to inner and one to outer side of arm, secure by bandage, and support in sling.

Fracture of forearm.—Straighten as above; secure two splints as above to extend from a little below elbow to middle of hand. With forearm across chest and thumb up apply padded splints, one to outer and the other to inner side of forearm; then support in sling.

Fractured wrist.—Treat like fractured forearm.

Fractured fingers.—Draw gently into natural position. Apply narrow padded splint to palm surface of finger, hold in place by narrow bandage, and support in a sling.

Fractured hand.—Apply padded palm splint as wide as the hand and to extend from above the wrist to beyond tips of fingers; hold in place by a bandage and support in a sling.

Fracture of thigh.—By gentle extension and counterextension pull parts into natural position. While being held by an assistant, apply a well-padded outer splint to extend from armpit to below foot. Then apply a well-padded inner splint to extend from crotch to below foot. Hold splints in place by a snug bandage.

If nothing else is at hand, the injured leg may be splinted by bandaging it to the other leg.

Fracture of lower leg.—An excellent splint can be made by placing the leg on an ordinary pillow and tying the pillow around it. Wooden splints may be applied on the outside of the pillow, extending from above the knee to below the ankle. The wooden splints, well padded, may be applied without the pillow.

Fractured kneecap.—Straighten leg. Pad well a wooden splint as wide as the thigh and long enough to extend from middle of thigh to middle of lower leg. Apply splint to back of thigh and leg, with center opposite bend of the knee. Secure by strips of bandage. Do not bandage directly over break, but one strip above and one below knee.

Fractured foot.—Apply a well-padded splint as wide as foot from heel to toes. Elevate and support.

VENEREAL DISEASES.

Gonorrhea (*clap*).—Inflammation of the urethra due to microorganisms called gonococci. Usually occurs in from three days to two weeks after exposure, usually during the first week. First there is noticed an itching sensation, with a slight puffiness and redness about the lips of the orifice. This is soon followed by a creamy discharge. There may be marked burning and difficulty in urinating. May have such complications as chordee, phimosis, paraphimosis, orchitis, or bubo.

The disease usually subsides in from one to three months. It is often difficult to tell absolutely when it is cured. The gonococci may invade the blood stream and attack numerous organs of the body.

Treatment: Rest is essential, and if any of the complications are present rest in bed is absolutely necessary. Should drink plenty of water, avoid stimulants (alcohol, tea, coffee), and be regular in eating and sleeping. Avoid eating greasy food. Keep bowels well open and bathe frequently in hot water, if practicable.

Injection of warm sterile plain water or salt solution may be used. If on hand, a 10 per cent argyrol solution is an excellent injection. Injections should be twice a day, or, if discharge is profuse, three times a day.

Before injection urinate, then run the solution into the canal from a penis syringe and hold solution in canal from two to three minutes before allowing to escape.

If on hand, a copaiba capsule may be taken three times a day.

The penis should be kept clean, thoroughly bathed in warm water or warm salt solution (1 teaspoonful of common salt to pint of water).

Do not put cotton over the head of penis, but take a small pad of gauze, slit it in the center, and slip back over the head of penis and pull foreskin down over it; this will catch the discharge. The ends of the gauze should be sufficiently long to extend out over the head of the penis.

If urination causes pain or burning immerse penis in basin of warm water and allow urine to flow.

Remember this is a contagious disease and you are liable to convey it to others. You should use your own towels and have your clothes washed separately. Your hands should be washed thoroughly after handling your penis. Be careful not to carry any of the pus into your eyes. By so doing you are liable to set up trouble there, which often causes complete blindness. Keep your fingers away from your eyes. Avoid all violent exercise. It may be well to wear some support for your testicles. This may prevent a swollen and painful testicle.

Chordee (*painful erection, especially at night*).—If this occurs, apply cold applications. Avoid too warm bed clothing. Keep bowels open. Keep mind clear of sexual thoughts.

Phimosis.—The foreskin is elongated and contracted down over the head of penis.

Treatment: Soak in hot water or salt solution, and inject same under the foreskin.

Paraphimosis.—A condition where the foreskin is swollen, rolled back, and tight.

Treatment: About the same as for phimosis. Patient should be put to bed in treating the above complications.

Bubo ("*blueballs*").—Swollen glands in the groin.

Treatment: The most important thing is rest in bed. Tincture of iodin may be applied to gland. Cold applications are effectual at the outset, but later hot ones are better. If suppuration occurs (pus forms), an incision may be necessary. This should not be done by a layman unless absolutely necessary. It should be done with care, the pus let out, the wound washed out with sterile, warm, plain water or salt solution, wicks of gauze applied in the opening for drainage, and dressed. Should be redressed as often as dressing becomes soiled. Before incising, paint glands with tincture of iodin. Burn all soiled dressings and wash your hands after dressing a bubo.

Orchitis (*swollen testicle*).—Not an infrequent complication.

Treatment: Rest in bed most important. Support and elevate the testicle. Apply cold or hot application; hot is probably more comfortable. Keep bowels open.

Stricture of urethra.—Usually a later complication and probably you will not have to treat. Sometimes, however, it does occur in early stages and patient is in great pain and unable to pass his urine. You may induce him to void his urine by applying hot applications over the bladder or placing him in a hot bath. If laudanum is at hand 20 drops may be administered.

If the condition is urgent, and a doctor can not be gotten, as the last resort you may attempt to pass a catheter, if one is at hand. It should be sterile and well greased with oil, albolene, glycerin, etc. It should be manipulated gently and with as little force as possible.

Chancroid.—A soft chancre, venereal ulcer upon the penis. Usually occurs from 2 to 10 days after exposure. Is sometimes hard to differentiate from hard chancre—primary stage of syphilis. Sore may be mixed—both chancre and chancroid. Keep sores clean with soap and warm water, then wash with warm salt solution (1 teaspoonful of common salt to pint of water). This should be done several times daily. The same general rules about attention to the cleaning of hands of both patient and aider after handling penis apply here as in gonorrhea. Also attention to towels, etc., of patient, to prevent its spread to others.

The most frequent complications of chancroid are bubo, phimosis, and paraphimosis; and the treatment of these is as given under gonorrhea.

Syphilis.—This is a very virulent and severe communicable constitutional disease and is usually acquired during sexual contact. It may, however, be contracted otherwise. The primary lesion of syphilis is a sore called a chancre and starts at the point of inocula-

tion of the virus. If due to sexual contact it is found upon the penis. It may start upon the lips, tongue, or tonsils. It usually appears from three to six weeks after exposure. The average is about one month. It may appear as early as 10 days. It usually starts as a papule or pimple, which breaks in the center and forms an ulcer with hardened edges. This is soon followed by enlargement of the glands in groins and neck. In about from one to two months the skin eruption appears. May have sores on his lips, tongue, or cheeks, and a general sore throat. Hair may fall out. May complain of headache, general muscular and bone pains, fever, and the whole system may become involved.

Treatment: A man in the active stage of syphilis should not be allowed to start on a cruise. He is a menace to himself and others. If it breaks out on a voyage he should be more or less isolated. Should use his own mess gear, drinking cups, towels, toilet articles, etc. He should not be detailed for work as a messenger, cook, mess attendant, or for any work about the galley. The primary sore should be kept clean with warm water and soap and then washed with warm salt solution. The mouth and teeth should be kept clean. The mouth may be washed out with sodium bicarbonate solution, or if sores appear in mouth, by a mild antiseptic solution (potassium chlorate), if on hand.

The laundry of a man suffering from syphilis should be washed separately from the rest of the crew.

The patient should see a doctor for treatment and advice as soon as possible. The same precautions as given under gonorrhea and chancroid should be observed in regard to chancre and syphilitic sores to prevent spread of the disease to others.

Under no circumstances should anything that has been used in the mouth of a person with active syphilis be used by others.

The person should use his own mess gear, etc., as stated above, and this should be thoroughly scalded out after each using, with boiling water.

35058—16——3

CHAPTER III.

SPECIAL DISEASES.

FEVERS.

By fever we mean a rise in the temperature of the body accompanied by a general disturbance of health. Some fevers are infectious; that is, they may be conveyed from one person to another; but it is probable that all fevers are due to germs.[1]

TYPES OF FEVERS.

1. *Continued fever.*—Where there is variation of less than 2° between the morning and evening temperatures; these do not come down to normal.

2. *Remittent fever.*—Where there is a variation of more than 2° and the temperature does not come down to normal.

3. *Intermittent fever.*—Where there is a variation of more than 2° and the temperature does come down to normal at least in every 24 hours.

TERMINATIONS OF FEVER.

1. *By crisis.*—When the temperature comes down suddenly.

2. *By lysis.*—Where the temperature comes down gradually.

---

[1] In taking the bodily temperature the small clinical thermometer with a scale ranging from 92° to 110° F. is employed in this country.

To read the height of the mercury column some practice is necessary. The anterior aspect of the glass tube is conical, in order, by refraction of light, so to broaden the image of the mercury column as to make the latter more readable. Hold the apex or sharper edge of this cone toward you, and gently oscillate from side to side until the flash of the broad metallic column strikes the eye, then hold in that position and read the degree at the top of the column.

Familiarize yourself with the normal height, 98.6°, denoted by a special marking. Always see that the mercury is below this before taking a temperature.

To force the mercury down hold firmly in hand by upper end, and following repeated smart, snappy swings of the forearm the column will be found to have been carried down.

Temperature by mouth is taken as the normal standard; by rectum it is roughly one degree higher, in armpit one degree lower than by mouth. Leave the thermometer in position for three minutes before reading.

After using clean in cold water, and immerse for 20 minutes in bichlorid, 1–1000, or carbolic acid, 1–20.

INFECTIOUS FEVERS.

1. Those common in the United States:
   (*a*) Those accompanied by rash—
   Chicken-pox.
   Scarlet fever.
   Smallpox.
   Measles.
   German measles.
   Typhus fever.
   Typhoid fever.
   (*b*) Those not accompanied by rash—
   Mumps.
   Whooping cough.
   Diphtheria.
   Influenza.
2. Those met with abroad:
   Malta (or Mediterranean) fever.
   Malaria.
   Cholera.
   Dysentery.
   Plague.
   Yellow fever.
   Dengue.

In dealing with infectious disease the following terms are employed:

Incubation period: This is the time which elapses between the date of infection and the appearance of the first symptoms. During this period the germs of the disease are growing and multiplying in the body.

Quarantine period: This is the time during which apparently healthy people are isolated after being in contact with a case of an infectious disease to see if the infection has occurred. This period is always two or three days longer than the incubation period.

Isolation period: This is the time during which the patient suffering from an infectious disease is segregated because he is infectious to others.

In describing the rash which accompanies infectious fevers the following terms are used:

A *papule* (or pimple) is a small, red, solid elevation of the skin.

A *macule* is a small spot of congested skin; it is larger and flatter than a papule.

A *vesicle* is a small collection of serum under the skin; *i. e.*, a blister.

A *bulla* or *bleb* is a large vesicle.

A *pustule* is a small collection of pus under the skin.

A *scab* is an irregular mass of dried serum or pus.

In infectious fevers the rash appears after a certain definite interval from the commencement of the illness, and to remember the day on which the rash appears the following is sometimes used: Learn this sentence, "*Very sick people must take no exercise*," and apply it thus:

	Disease.	Day on which rash usually appears.
1. Very	Varicella (chicken-pox)	First day of illness.
2. Sick	Scarlet fever	Second day of illness.
3. People	Smallpox	Third day of illness.
4. Must	Measles	Fourth day of illness.
5. Take	Typhus fever	Fifth day of illness.
6. No	No disease	
7. Exercise	Enteric (typhoid fever)	Seventh day of illness.

Infection is spread in various ways—by actual contact, by the air, food or drink, clothing, books, utensils, etc.

The most infectious part of a patient may be his breath, saliva, urine, or feces, or discharges from the throat, nose, or ears.

PREVENTION OF THE SPREAD OF INFECTION.

1. *Isolation.*—As soon as a case is suspected of being infectious the patient should be kept away from other persons. On board ship any suitable place must be employed, such as a spare cabin, chain locker, a boat roofed over with tarpaulin, any compartment which can be afterward thoroughly disinfected and where the individual will not come in contact with the rest of the crew. The patient should be sent to a hospital as soon as the proper authority has been obtained from the quarantine officer of the port or other authorized person. The person detailed to attend an infectious case must not mingle with other people. The patient must have his own separate utensils, cup, plate, knife, fork, and spoon, etc., and use a commode and urinal instead of the general head. Isolation must be complete so that there is no possible way by which infection can be carried to others.

2. *Disinfection.*—By disinfection is meant the killing of the germs of the disease. This is carried out by heat, by chemicals, or by fresh air and sunlight.

Disinfection by heat: Boiling in water is the best and surest method of disinfection, but it can not, of course, be used for every infected article. For bedding and clothing a steam disinfector is used. This consists of two large metal cylinders, one inside the other, leaving a space between inclosed at the ends by hinged doors.

The articles to be disinfected are put into the inner chamber through the door, which is then closed, and steam turned into both the inner and outer chambers, so that the steam in the inner chamber, being under pressure, attains a temperature of about 240° F. After about 30 minutes the articles are removed through the door, and hung in fresh air and sunlight to dry. (See also chapter on Quarantine.)

GENERAL TREATMENT OF INFECTIOUS DISEASES.

The fundamental principles of the treatment of infectious diseases are:

1. Rest.
2. Diet.
3. Fresh air.
4. Hydrotherapy (the use of water, hot or cold, as baths).
5. Drugs.

Rest.—Should be actual rest, in a comfortable bed, placed in a quiet, well-ventilated compartment, and every means exercised to relieve the patient from anxiety and concern and to promote sleep.

Diet.—Should be liquid or semisolid, such as milk, raw or soft-boiled eggs, tapioca, cornstarch, chicken, beef, or mutton broths, seasoned and thickened with rice. Food should not be urged in the early hours or days of a disease against the patient's disinclination to take food. However, when the patient has lost his aversion for food it should be appreciated, and the appetite catered to as far as may be consistently done, keeping in mind the general diet of liquids or semisolids, as given above. Water, or such drinks as lemonade, limeade, orangeade, or carbonated water should be given frequently and offered to the patient, not waiting for his request, because frequently there is a mild delirium, and the patient's state of mind will not cause him to ask for water.

Fresh air.—Means of supplying abundant fresh air, preferably cold air, should be provided. If practicable all cases of fever should be treated in the open air on deck, but if the weather is particularly cold the patient should be kept warm, covering the bedclothing with a rubber blanket and all tucked well in under the mattress to prevent the cold air getting under the bedclothing; a hot-water bottle placed at the feet adds a great comfort in treating the patient in the open.

Hydrotherapy.—The effects of cold water are the same as the effects of cold air. Water is a conveyor of temperature, and cold stimulates vital centers reflexly through nerves from the skin. The essentials to success in using water as a means of treatment are, the water must be cold and friction must be applied, rubbing the skin vigorously until the patient reacts. Cold baths should never be carried to the extent where patient collapses.

Drugs.—At the beginning of a fever a drug to open the bowels freely should be given. Usually castor oil in two-tablespoon doses, or Epsom salts, two-tablespoon doses in water, or dividing doses of calomel, giving one-tenth of a grain every 20 minutes for 10 doses, followed in 2 hours by an ounce of Epsom salts. This movement of the bowels relieves stagnation and absorption of products of putrefaction. Seiler's solution, 4 tablets dissolved in a pint of water, should be used frequently to clean the nose and mouth during fever; stimulants when the heart begins to fail; phenacetin or aspirin in 5-grain doses for the relief of headache and muscular pains.

Careful nursing is an essential in the treatment of all disease, and while it is not to be expected that the nursing available on board auxiliary ships will be as efficient as that which may be had from persons trained in the art of nursing, much may be done to aid the sick if attention is given to providing for their wants and promoting their comfort.

Keeping the patient's face, hands, and body clean, and the nose and mouth clear and moistened, reflexly makes him feel fresher and better able to combat the germs and toxins of disease.

INSTRUCTIONS TO BE GIVEN TO THE PERSON DETAILED TO CARE FOR AN INFECTIOUS DISEASE.

1. Wash your hands as soon as possible after touching the patient, his clothing or bedding, also after handling the bedpan, urinal, thermometer, etc.
2. Wash your hands carefully before eating your meals.
3. Never use cups, plates, spoons, knives, forks, etc., which have been used by the patient. Keep your own utensils in a separate place so that you will know that you are always using the same articles.
4. See that your patient does not mix with the other people of the ship.
5. On no account are you allowed to mingle with others of the crew, etc.
6. Never eat your meals with the patient.

CHICKEN-POX.

Incubation period, 10 to 16 days.

Quarantine period, 18 days.

Isolation period, until all scabs have fallen off, usually 21 days.

Symptoms: Rash appears on the first day of the illness and consists of blisters, which dry and form scabs. The blisters come out in crops mostly on the trunk, face, and scalp, and only a few on the limbs. There is usually very slight fever and the patient does not feel very ill. The blisters which form on the scalp may be painful and prevent sleep.

Treatment: Put to bed if there is fever, otherwise not necessary. Diet, no change unless there is fever, then exclude solids. Give water freely. For itching, wash parts gently with a solution of sodium bicarbonate, 1 tablespoonful to a pint of water. Keep mouth clean with Seiler's solution. Keep bowels open with salts (Epsom), 1 tablespoonful in water.

SCARLET FEVER.

Incubation period, 1 to 8 days, usually 3 to 5.

Quarantine period, 10 days.

Isolation period, until scaling and sore throat disappear; never less than six weeks.

Symptoms: These come on suddenly, the most marked being fever and sore throat.

The rash appears on the second day and consists of bright-red papules set very close together, which gives the skin its scarlet hue. It is seen first on the neck and then spreads to the chest, arms, abdomen, and legs. It is usually most marked on the neck, the flanks, the buttocks, the bend of the elbows, and on the inner side of the thighs and knees, but never appears on the face. It usually lasts about five days.

The throat remains sore for some days, the tonsils are red and swollen and often covered with yellow patches. The tongue is at first covered with white fur through which the red papillæ show, giving it the appearance of a strawberry. Later when the fur disappears the tongue becomes very red. The fever is usually high and lasts about a week. It may cause some flushing of the face, which must not be mistaken for the rash.

Desquamation, or peeling of the skin, commences as the rash disappears, and is first noticed on those parts of the body where the rash was most marked. It commences as a small white spot, in the center of which a hole appears. From this center a circular scale separates. This pinhole peeling is characteristic of scarlet fever. The scales may be small or may come away in large flakes. The last parts to peel are the palms of the hands and the soles of the feet.

Treatment: The patient should be kept in bed even in the mildest cases, on account of possible inflammation of the kidneys, which is the most frequent and serious complication of this disease. The body should be sponged daily during the fever with warm water in a warm room, under a blanket, exposing one part of the body after another.

The diet should be restricted to milk, giving two quarts a day during the fever. If milk is not available, gruels made from cereals, arrowroot, cornstarch, barley flour, or tapioca may be substituted. Feed at two-hour intervals, but do not interrupt sleep at night. Water, lemonade, orangeade, limeade, etc., sweetened, should be given freely. No meat broths should be given.

Particular care should be given to the nose and mouth, and they should be frequently cleansed with salt solution; one teaspoonful of common salt dissolved in a pint of tepid water.

The patient should be under treatment for six or seven weeks, or until peeling is completed.

The case should, of course, come to the attention of a medical officer as soon as possible.

To relieve the pain of the sore throat apply the ice bag to the neck, and have the patient gargle with Seiler's solution, dissolving four of the tablets in a pint of warm water. When the skin commences to peel, the patient may be rubbed with olive oil or a simple ointment to prevent the scales floating about, or a daily hot bath may be given.

The infection is most potent in the secretions of the nose and throat during the first five days of the disease.

SMALLPOX.

Incubation period, about 12 days.

Quarantine period, 14 days (see p. 78).

Isolation period, until every scab has disappeared—about 10 weeks.

Symptoms: The beginning is sudden, with a chill, headache, and pain in the back. The headache and backache are very severe and quite characteristic. The temperature rises rapidly to 103° or 104° F., and the patient may be delirious.

The eruption appears on the third day, on the forehead, scalp, forearms, trunk, and legs. At first the eruption consists of papules, which are small and red and feel like shot under the skin. On the sixth day the papules become vesicles; on the eighth, pustules; and on the tenth scabs form, which in time fall off, leaving, finally, deep, white, pitted scars. When the papules appear the temperature falls, but rises again when the pustules are forming. The patient's skin has usually a very foul odor.

There are four varieties of smallpox:

1. Modified smallpox, where the symptoms are less severe and the amount of rash smaller, owing to the patient having been vaccinated.

2. Discrete smallpox, where the pustules are scattered and do not run together.

3. Confluent smallpox, where the pustules run together and the symptoms are very severe.

4. Malignant smallpox, where, in addition to the ordinary symptoms, hemorrhages occur under the skin, or from the bowels, lungs, kidneys, or bladder. This variety is fatal in a day or two.

Treatment: The body must be sponged over twice daily, or warm baths given when the patient is strong enough. The mouth must be

kept clean and the eyes washed with boric-acid solution. The eruption is usually covered with some oily dressing, such as vaseline or carbolized oil, or with cold-water compresses covered with oiled silk or muslin. A mask is made to cover the face and the eyes protected from the light. An arrangement to relieve the patient of the weight of bedclothes will become necessary. Feeding may become difficult owing to the condition of the mouth. Delirium is common, and the patient must be carefully watched. Treat the patient along the general lines under that heading. Report the suspected case by wireless if possible.

MEASLES.

Incubation period, 7 to 14 days.

Quarantine period, 16 days.

Isolation period, 21 days from appearance of the rash.

Symptoms: The disease commences like a common cold, with sneezing, running at the eyes and nose, headache, cough, and slight fever. On the fourth day the rash appears on the face, and thence spreads downward to the neck, chest, abdomen, and limbs. It consists of dull, red macules, which run together, forming various patterns, and lasts about three days. The lining of the mouth and throat appears of the same bright red rash, dotted by minute white spots, which condition is diagnostic of measles. The temperature falls at the end of the fifth day and the symptoms disappear, but the cough may remain for some time.

Treatment: On general lines. Guard against chilling, as the complications, bronchitis and pneumonia, may prove fatal.

GERMAN MEASLES.

Incubation period, 7 to 18 days.

Quarantine period, 20 days.

Isolation period, 10 days from the appearance of the rash.

Symptoms: These are usually very mild, consisting of sore throat, headache, very mild fever lasting only a day or two, and enlargement of the glands of the neck. The rash appears on the third or fourth day on the face and chest, spreading to the trunk and limbs. It consists of red papules larger and duller than in scarlet fever, smaller and brighter than in measles, and lasts about two days.

Beyond keeping the patient isolated for a few days and avoiding a chill, no treatment is usually necessary.

TYPHUS FEVER.

Incubation period, 5 to 12 days.

Quarantine period, 12 days.

Isolation period, 4 weeks.

This disease is transmitted from a person infected with the disease to well persons by the body louse; therefore, the presence of lice on board a ship is a great menace to the health of the crew; no lice, no typhus.

Symptoms: These come on suddenly with headache, shivering, vomiting, and a rapid rise of temperature to 104° or 105° F.

The rash appears on the fifth day on the trunk and limbs, but not on the face. It consists of dull-red mottling of the skin with small hemorrhages like flea bites, and has been called the mulberry rash. It lasts about two weeks.

Great prostration is a marked symptom and delirium is common.

The fever ends by crisis usually on the thirteenth day.

Treatment: On general lines. An abundance of fresh air is essential. Thoroughly examine the rest of the crew to ascertain the presence of lice. If found, immediately burn all clothing infested. Hair of the head and body should be shaved, the hair thus collected burned immediately. The body should be thoroughly washed, and the water thus used immediately thrown overboard. In short, use every means to get rid of lice.

TYPHOID FEVER.

Incubation period, 1 to 3 weeks.

Quarantine period, is not observed.

This important disease is now very rare in the naval service because of antityphoid inoculation used throughout the Navy.

The germ of the disease enters the body through the mouth in infected foods or drinks, of which water and milk are the commonest, and after that, food contaminated by flies; thus showing the importance of protecting all foods, both cooked and uncooked, from flies.

Symptoms: These come on very gradually with loss of appetite, general indisposition, and headache; there may be also some cough, diarrhea, and bleeding from the nose.

It is a disease in which the fever lasts about four weeks. During the first week the temperature gradually rises until the beginning of the second week, when it reaches its height, and then continues until about the end of the third week, when it gradually begins to fall, ending by lysis at the end of the fourth week.

The rash appears on the seventh day on the abdomen, back, and lower part of the chest. It consists of fairly large, raised rose-spots, which fade on pressure. They are usually few in number and come out in crops. Each spot lasts about four days and the rash lasts about 14 days. As the fever progresses the patient becomes very weak; he loses flesh; his cheeks are slightly flushed; he is drowsy; and he is not capable of any exertion. He suffers from thirst; unless

carefully attended his lips and teeth become covered with scabs and crust. Delirium is common.

Treatment along general lines: The patient needs careful nursing and should be removed to a hospital at the very first opportunity. When the fever is high, sponge baths should be given both night and morning, or oftener if necessary. Careful feeding is quite necessary in the treatment of typhoid fever, and the diet should consist principally of milk, although soft-boiled eggs, well-baked potato with a little butter and salt, broths and puddings, and a few crackers may be added.

Drugs are of little use. The patient must be carefully watched and all his wants given attention.

MUMPS.

This is an infectious disease characterized by swelling of one or more of the salivary glands, usually the parotid—the one at the side of the jaw.

Incubation, 10 to 22 days.

Quarantine period, 24 days.

Isolation period, 3 weeks, but one week must have elapsed since all swelling has subsided.

Symptoms: The patient complains of pain and stiffness on moving the lower jaw, and there will be swelling of one or more of the salivary glands. His temperature is raised often to 104° F. The fever lasts about a week and the swelling about 10 days.

Treatment: On general lines. Isolate; keep the bowels open well, and for the pain hot-water bags may be used, applied to the swelling.

Complications: Orchitis, or inflammation of the testicles, is very liable to occur at the end of the first week. The temperature rises rapidly and the testicle is found to be painful, tender, and swollen. This condition does not usually last more than a week. The testicles should be supported by a suspensory bandage or a broad strip of adhesive plaster applied across the upper part of the thighs in such a manner that the testicles will be thoroughly supported. The ice bag should be applied to relieve the pain and the bowels freely opened with Epsom salts—two tablespoonfuls dissolved in water.

DIPHTHERIA.

This is an infectious disease characterized by the formation of a membrane in the throat and on the tonsils and soft palate. It is caused by the diphtheria bacillus; all secretions from the nose and mouth are infectious.

Incubation period, 2 to 10 days. Quarantine period, 12 days. Isolation period, until seen by medical officer and discharged.

Symptoms: These come on gradually, with general indisposition, sore throat, and moderate fever. There is a creamy-white deposit formed on the tonsils, which spreads to the uvula and soft palate. This membrane may form on other adjacent parts and block the breathing tubes, in which case there is great danger of asphyxia. In addition to the symptoms caused by blocking of the air passages by the formation of the membrane the patient suffers greatly from an overwhelming intoxication due to the formation of the poison by the diphtheria bacillus located in the membrane.

Treatment: Along general lines until the case can be seen by a medical officer. Keep the patient closely in isolation, and the throat clean by frequent gargling with warm Seiler's solution—four tablets dissolved in one pint of water. All secretions from the nose and mouth are very infectious and these should be particularly taken care of. The attendant may become infected by the patient coughing in his face. To prevent this kind of infection the attendant should at once wash his mouth out with Seiler's solution and bathe his eyes with boric-acid solution.

INFLUENZA (GRIP).

This disease is due to a definite germ and is highly contagious.

Incubation period, 1 to 6 days.

The onset is fairly sudden with fever and signs of a bad cold, but the patient feels much more ill than with ordinary colds, and has severe pains in the back, limbs, and head. In some forms the lungs are mostly affected and pneumonia or bronchitis may complicate the disease. In others the heart may suffer, causing palpitation and difficult breathing; while in others, again, diarrhea and vomiting may be the chief symptoms. The acute illness lasts about a week, but convalescence may be very prolonged.

Treatment: On general lines. In the beginning of the disease open the bowels well with a dose of castor oil—2 tablespoonfuls. After this has acted give 10 grains of Dover's powder at night. If the headache and pains in the limbs and back continue and are severe give phenacetin, 5 grains every three hours. Do not continue this treatment more than two days as phenacetin depresses the heart.

MALTA OR MEDITERRANEAN FEVER.

This is a long-continued fever, which may last for a year or more and is caused by a definite germ, which enters the body through food, principally milk, particularly that of goats. To prevent the disease, no milk should be used while cruising in the Mediterranean or near Malta.

Symptoms: The patient suffers from fever which lasts for a week or two, then the temperature remains normal for about a week, after which the fever returns, and so on through the whole course of the illness. He becomes pale and very weak, and the joints may become painful and swollen.

Treatment: On general lines. In this as in all cases of fever bring the attention of a medical officer to the person as soon as possible.

MALARIAL FEVER (CHILLS AND FEVER).

This is a recurrent fever caused by the malarial parasite which is carried by a mosquito, and which enters the body when the insect bites. The disease is not infectious except through the bite of a mosquito.

Symptoms: The disease consists in attacks of fever which recur at regular intervals. Each attack may be divided into three stages:

1. The cold stage: The patient shivers and feels cold when his temperature is rapidly rising. He goes to bed and covers himself with extra blankets. This stage lasts about half an hour.

2. The hot stage: He begins to feel warm and removes most of the bedclothes. The skin feels hot and dry, and he suffers from severe headache. The temperature will now be 105° F. or higher. This stage lasts three or four hours.

3. The sweating stage: During this stage the patient perspires freely, the headache and flush disappear, and the temperature returns to normal. This stage lasts about two hours.

These attacks occur every day, every other day, or every third day, according to the form of malarial parasite, and each lasts about six hours. There are other types of malaria in which the fever is continuous, and somewhat resembles the fever of typhoid. Frequently this type of malaria can be diagnosed only by the aid of a microscope, and therefore requires the attention of a medical officer.

Treatment: During the attack, treat along general lines. The only drug which has any effect is quinin, which can be given by mouth, in capsules of 5 grains every two hours.

Prevention: The malarial mosquito bites preferably at dusk or at night, therefore when in malarial countries everyone should sleep under mosquito nets. A dose of quinin, 5 grains every third day, tends to prevent the disease and should be given when in ports where malaria is prevalent.

YELLOW FEVER.

An important epidemic disease of the west coast of Africa, of South America, Central America, and the West Indies. The virus is contained in the blood of infected patients only during the first

three days of the disease, and the disease is transmitted by the bite of a mosquito, the *Stegomyia calopus*. As it is important to be able to recognize this mosquito a brief description of it follows. The insect is almost black and has white bands on its back resembling a lyre or jew's-harp, and the legs also have white bands. If deprived of water the adult insect only lives about five days. It is essentially a house mosquito and rarely travels more than 75 feet from the house where it has been feeding, and it is probable that it is brought aboard ships in connection with coaling or provisioning rather than blown aboard by prevailing winds.

When a susceptible individual is bitten by an infected mosquito there develops, after a period of incubation of from two to five days, a rapid rise of fever, with marked congestion of the face and severe pains of the back and head. Vomiting first of mucus and bile comes on very early. The temperature remains fairly high for three or four days, but notwithstanding the high temperature the pulse rate becomes less, and by the third or fourth day will have decreased by 20 to 40 beats from its initial rate. This is a very important symptom. On the fourth day the temperature falls and the face loses its congested appearance, and it is now that the most characteristic feature of yellow fever appears—namely, jaundice.

Prevention: By screening a patient during the first three days of the disease to prevent infection. Any receptacle, tank, double bottom, or other place where fresh water may be collected should be thoroughly screened and frequently inspected in order to prevent the breeding of mosquitoes (see p. 81).

Treatment: During the first three days of the disease no nourishment whatever should be given. The patient should be allowed an abundance of fluid, of which the best is vichy, giving a couple of ounces every 10 minutes, iced or just cool, as the patient prefers. If vichy is not available, water, to which has been added a teaspoonful of sodium bicarbonate (baking soda) to the quart, is a good substitute. It is of vital importance to put the patient to bed and keep him quiet. When vomiting is severe cracked ice may be of value.

A mustard foot bath should be given the feet and legs of the recumbent patient, being immersed in a foot tub half full of warm water in which a pound of ground mustard has been stirred. Every few minutes a quart of very hot water should be added, keeping the bath very hot, just short of burning the feet. The blankets are kept over the patient and foot tub, so that a vapor bath is also given, which produces sweating. This treatment relieves the head and backache and can be repeated two or three times in 24 hours. After the bath the sweating patient should be thoroughly dried. Stimulants every three hours should be given if the patient shows signs of collapse.

CHOLERA.

This disease is caused by a specific microorganism. It used to cause several hundred thousands of deaths in India, China, and Russia, but recently improved sanitation has diminished the depredations caused by this disease. Infection occurs through drinking water, or uncooked food contaminated by the feces of a cholera patient. The most frequent way by which food, both cooked and uncooked, is contaminated by feces is through the fly; therefore all food, both cooked and uncooked, should at all times be screened. (See p. 82.)

Symptoms: These commence with pain in the abdomen, diarrhea, and fever. In a short time the stools become pale and watery, and contain little white masses like rice, hence the common term "the rice-water stools of cholera." The skin is cold and clammy, the patient vomits, suffers from cramps of the muscles of the abdomen, and becomes collapsed. Fifty per cent of the patients die.

Treatment: Keep the patient warm. Stimulate with frequent doses of whisky or brandy.

Prevention: In countries where cholera is prevalent, never drink any water which has not been boiled, and never eat any uncooked vegetables. The stools of a patient must be carefully disinfected.

PLAGUE.

This disease is caused by the *Bacillus pestis*, and is carried by fleas from rats. It occurs chiefly in the Orient and China, but has occurred in epidemic form in the West Indies and Central and South America, and may be carried to any seaport by the rats in a ship.

Symptoms: There are two chief varieties of the disease, bubonic and pneumonic plague. In the former the formation of buboes is the chief sign; in the latter a rapidly fatal form of bronchopneumonia. In addition there is high fever with chills, headache, delirium, and great prostration. The disease is usually fatal in two to five days, the mortality being from 50 to 95 per cent.

Treatment: The symptoms alone can be treated, and along general lines with cold sponging, stimulants, and opening and dressing the buboes.

Prevention: Attempts should be made to kill all rats if there should be any on board, and when in port where bubonic plague is prevalent rat guards should be placed on all hawsers to prevent rats from boarding the vessel (see p. 78).

DISEASES OF THE STOMACH AND INTESTINES.

Colic.—This is a term applied to abdominal pain occurring in paroxysms of varying degrees of severity. The pain is usually located in the region of the navel—that is, in the middle of the belly.

Colic is often preceded by constipation and accompanied by vomiting.

The causes are various and the pain often may be a symptom of serious trouble. For example, abdominal pain is almost always the first and most pronounced symptom of appendicitis, gallstone, kidneystone, and the well-known cramps of lead poisoning (painters' colic).

Besides being a symptom of these conditions colic is most frequently due to overeating, and when such is the case emptying the overloaded stomach generally gives prompt relief.

The very best treatment which can be used to relieve abdominal pain, no matter what may be the cause, is gastric lavage or washing out the stomach. This is usually accomplished by means of a soft-rubber stomach tube, but as this method requires considerable skill to be effective it is not advised except when done by a medical officer or a well-trained member of the Hospital Corps. However, the stomach may be safely, thoroughly, and effectively washed by the following simple means:

Make the patient drink as rapidly as possible five or six glasses of lukewarm water and then cause him to vomit by tickling the back of his throat with the finger or a feather. After this has been done the patient should be placed in bed and a hot-water bag applied to the abdomen, a cloth to be interposed between the bag and skin to protect the latter from being burned or blistered. No food or drink should be allowed until the colic has subsided, and if it returns the stomach should again be washed out, following the procedure described above. An individual suffering with colic is vastly better off with nothing in the stomach, and such a person can easily go without food for five or six days, but must have water, which should be given in small amounts after the first 24 hours. If the patient's bowels have not moved during the past 24 hours, an enema (injection into the rectum), consisting of a pint of warm water and soapsuds, should be given, and repeated in half an hour if there has been no result from the other.

After all pain has subsided the patient may be given liquid or semisolid foods, such as clear soups, custards, milk, milk toast, or soft-boiled eggs, and this diet may be cautiously and gradually increased to the use of solid foods as the pain and vomiting subside and do not return.

As the patient gradually gets over the acute symptoms, and the pain, which at first was general, becomes localized, particularly as a tender spot in the right side of the abdomen, an ice bag should replace the hot-water bag and the patient be placed in an inclined position in bed, the incline being toward the feet.

It should be particularly noted and remembered that abdominal colic is only a *symptom*, and may indicate some very serious condition—appendicitis, for example—which can be relieved only by a surgical operation or other means which could only be applied by a skilled physician. However, if the treatment as given above is used, the unskilled person will be doing as much as any trained physician could do until the sufferer can be admitted to a hospital and come under the care of a surgeon.

Diarrhea.—Diarrhea is understood as an abnormal frequency of the stools with a change in their character and consistency. Commonly it is an acute condition caused by some inflammation or irritation of the intestines. It is one of the main symptoms of typhoid fever, cholera, and dysentery.

It is simple diarrhea when it occurs independently of any appreciable disease. It may be caused by exposure to cold or by eating unripe and indigestible vegetables and fruits, or decomposed or improperly cooked meat, fish, and shellfish. Drinking large quantities of cold water when the body is overheated is a frequent cause.

The symptoms are frequent watery and straining stools accompanied by loss of appetite, nausea, and sometimes vomiting and abdominal cramps.

Treatment: In simple diarrhea first clear the intestines with a quick-acting purgative in order to get rid of its irritating contents; give castor oil—two tablespoonfuls. After one or two actions of the bowels from the oil, favorable cases are usually checked, but, if not, put the patient on a liquid or semisolid diet, keep him at rest, apply the hot-water bag to the abdomen, and give lead and opium pill (or Dover's powder, 5 grains) every four hours for three or four doses. While the diarrhea is acute, the less food taken the better.

Dysentery.—Dysentery, or bloody flux, as it is sometimes called, is an inflammation and ulceration of the large bowel caused by an infection.

It occurs in different degrees of severity and may be either acute or chronic. Its severest form is met with in tropical countries, where it frequently occurs in widespread endemics and may attack a whole ship's company.

It is caused by specific microorganisms which enter the system with contaminated food or drink.

Symptoms: The disease may begin suddenly or gradually. The first stools may be like those of ordinary diarrhea, and after a day or two, or may be a few hours, the stools contain slime and blood. Later they may become shreddy and brownish or greenish in color. The patient complains of cramps and "colicky" pains in the belly,

with a burning sensation in the rectum accompanied by a feeling as if something must be expelled, and a constant desire to go to stool. The number of bowel movements may be from 10 to 50 a day, or even 100, depending upon the severity of the case, but the quantity expelled with each movement may not exceed a teaspoonful.

Treatment: The patient should rest in bed, and if possible use the bedpan, so as to insure the greatest amount of rest, which is of greatest importance. Keep the patient warm, apply hot-water bag to abdomen, and stop all solid foods. In the tropical form of the disease ipecac, or its active principle emetin, acts as a specific, but it is required that it should be administered by skilled hands and is only mentioned here to impress the fact that a person suffering from dysentery should come under the care of a medical officer as soon as possible.

In countries where dysentery is prevalent no fruit or uncooked vegetables should be allowed, and all foods, both cooked and uncooked, should be protected from flies, which carry the contagion. Nothing but distilled or boiled water should be used for drinking or cooking purposes.

DISEASES OF THE RESPIRATORY SYSTEM.

Tonsillitis (sore throat).—All cases of tonsillitis and sore throat should be promptly isolated because of the possibility of their being diphtheria, and the consequent probability of an epidemic of that disease should such be the case. Sore throat often accompanies a bad cold and is common where ventilation is imperfect. Patient complains of rawness and difficulty in swallowing and the tonsils are swollen and red. There are headaches, general muscular and joint pains, and the fever is often high. Small beads of yellow pus are seen on the red, swollen tonsils, and in some cases abscesses may form.

If there is a grayish-white tenacious membrane formed in the throat, which bleeds readily when touched, the case should be regarded as diphtheria and the individual promptly and completely isolated, and a medical officer consulted as soon as possible.

Treatment: Isolate all cases of sore throat. Rest in bed, open bowels freely with castor oil, two tablespoonfuls, make patient gargle every half hour with Seiler's solution (made by dissolving four of Seiler's tablets in a pint of warm water). Apply ice bag to the neck, or cold cloths if an ice bag is not available. Give liquid and soft diet; avoid hot and highly seasoned food which will burn and irritate an already inflamed throat.

As rheumatism of the joints is a frequent sequel of tonsillitis it is well to give antirheumatic medication during and for about a week

after the attack. Aspirin (gr. 10), three times a day after food, should be administered.

Coughs and colds.—When a person has a cough that lasts more than two weeks, even though the symptoms are mild, the case is serious enough to require an examination by a medical officer, which should be done at the first opportunity. A cold often marks the beginning of an acute infectious disease, such as measles, scarlet fever, etc.

A case of bronchitis or bad cold usually begins with a cough, sometimes starting with an irritation in the throat, which gradually travels down into the lungs. The cough is at first usually dry, but later there is a free discharge from the nose and the cough becomes loose and considerable mucus is raised from the lungs. This sputum may at first be white and later yellowish. With this there will be soreness over the upper and front part of the chest, and if the cough is violent there will be considerable soreness of the muscles between the ribs.

Treatment: Colds may often be aborted, certainly benefited, if at the beginning the patient's bowels are freely opened with castor oil or Epsom salts, and after either of these has acted he is given a hot bath, put to bed, a drink of hot lemonade administered, and covered with blankets until a good perspiration is induced. While in this condition care should be taken not to get the body chilled, and make the cold worse. Dover's powder, 10 grains, should be taken on going to bed.

Pneumonia.—There are two varieties of this disease—one known as bronchopneumonia, which usually occurs as a complication of some other disease, and acute lobar pneumonia. The latter is caused by a specific germ and is most liable to occur after exposure to cold and hardships. Among a ship's company firemen and coal passers are apt to contract the disease should they expose themselves on deck when the weather is cold and inclement, and while they are overheated with recent work in the fireroom.

Symptoms: As a rule only one lung is infected, but double pneumonia is not uncommon. The onset is sudden with headache, violent chill, and sharp pain in the side infected. The face becomes flushed, particularly over the cheek bones. Breathing is rapid and accompanied by a short grunting cough, the patient restricting his efforts in coughing because of the pain in the chest. After a few days the sputum (expectorated matter) becomes a peculiar rusty color, due to the presence of blood in it. The breathing becomes more rapid and difficult and often the patient is delirious. The fever which occurs with the chill remains high for about seven or nine days and then falls suddenly to or below normal; that is, it ends by crisis. Herpes

or blisters about the lips are quite common and may cover the entire mouth.

Treatment: Rest in bed, warmth, liquid diet, and abundance of fresh air are essential. Place the patient on deck in open air if possible. A medical officer should be called to see the case as soon as possible, but in the meantime the patient should be kept in bed and some one detailed to nurse him, remembering that delirium in pneumonia is quite frequent. If the services of a medical officer are not obtainable, for the first two or three days of the disease give 5 grains of Dover's powder every four hours to relieve the pain. Keep the bowels well open by an occasional dose of Epsom salts—1 ounce. About the fifth day of the disease the heart is very apt to become weak, and during this time stimulation is necessary to tide the patient through the crisis.

Six ounces of milk, soup, or egg-albumen water should be given every two hours. The blisters on the lips should be kept soft with a little vaseline.

Bear well in mind that in this disease there is a terrible strain on the heart. The patient should be kept absolutely quiet in bed, and not allowed to exert himself in the least. The bedpan and urinal should be used.

Pleurisy.—Inflammation of the pleura may be caused by exposure to cold and wet or by injury, such as fracture of a rib with the broken ends wounding the pleura. It occurs as a complication of pneumonia, tuberculosis, and some of the acute fevers.

Symptoms: Commences suddenly with a sharp, stabbing pain in the side, which is made worse on taking a deep breath or coughing. There is fever, the degree of which varies with the intensity of the infection.

Treatment: Strap the side with a broad strip, or several narrow strips, of adhesive plaster, so that the ribs on the side affected can not move. The strips should be carried a little more than halfway around the chest, the ends terminating beyond the midline in front and back and applied while the patient forces all air possible out of his lungs. By restricting the movements of the chest the pain is greatly relieved. Keep the patient at rest with abundance of fresh air, open bowels well with castor oil—ounce 1—or salts (Epsom)—ounces 1 or 2. If the pain is very severe, apply the ice bag to the side.

Tuberculosis (*consumption*).—This is a chronic disease, and the first noticeable symptom may be a hemorrhage, the blood being coughed up, but the onset is usually gradual. A person with a cough who feels weak and indisposed to do anything, loses weight, and has very little appetite, should be brought to the attention of a medical officer at once, who will take the proper steps in the premises.

It is dangerous to allow a seaman with consumption to remain aboard, as there are so many opportunities for conveying the disease to well people. No one should ever be allowed to expectorate on any part of the ship. Spitkids should be thoroughly cleaned daily.

DELIRIUM TREMENS.

Delirium tremens occurs as an incident in the life of persons addicted to the excessive use of intoxicating liquors.

Loss of appetite, sleeplessness, or a marked mental depression are the chief symptoms of the first stage of the affliction known among drunkards as "the horrors."

As the disease advances the patient talks incoherently, has a wild expression, his mind wanders from one thing to another. He answers questions in a rambling manner and fancies he is being pursued by wild animals, or that he sees rats, snakes, and other animals crawling on the walls around his bed. The delirium is always worse at night, but the patient requires watching at all times, for he may try to jump overboard or commit suicide in some other way.

Delirium tremens may be confounded with delirium of acute fevers. Pneumonia is a frequent complication of delirium tremens and in fatal cases may be the direct cause of death.

Treatment: The patient requires constant attendance. In all cases the symptoms are aggravated by the lack of food, which the patient has been either unable or unwilling to take. Careful feeding is of the utmost importance. Thick, nourishing soup constitutes the best food in this condition and should be given every two hours, and the patient encouraged in every way to take food. Until a medical officer can assume charge of the case whisky should not be withheld, but should be given in gradually diminishing quantities—1 or 2 ounces every two hours, especially if the pulse is weak.

The serious symptoms are largely due to sleeplessness, and if several hours of sound sleep can be produced improvement is almost sure to follow. To this end potassium bromid in 30-grain doses should be given in water every three hours.

SUNSTROKE.

Sunstroke is an attack of illness caused by exposure to the rays of the sun; but the same condition may be produced in hot weather by exposure to high temperatures not in the direct rays of the sun, particularly if the person is engaged at hard work in close quarters. Coal passers and firemen are sometimes affected by the heat of the furnace. Men debilitated from or addicted to the excessive use of stimulants are more apt to suffer than those of temperate habits.

Sunstroke occurs in two forms—heat stroke (heat fever), in which the temperature of the body is very high, and heat prostration or heat exhaustion, in which the surface of the body is cool. The difference is very important because of the different treatment required.

In severe cases of heat stroke the person may be stricken down and die in a few hours. In other cases there may be intense headache, dizziness, marked restlessness, nausea and vomiting, and hot, burning skin. The clinical thermometer may register 105° F. Pulse is strong and may be slow or fast and breathing difficult. The patient soon becomes unconscious, and if left untreated the unconsciousness deepens and death may follow within 24 hours.

In heat prostration the surface of the body is cool, the pulse weak and rapid, and the patient feels exhausted. There may be only slight nausea and vomiting, and under treatment the patient may rapidly recover; or, on the other hand, there may be complete loss of consciousness and a rapid and fatal termination from exhaustion. This prostration is often accompanied by muscular cramps, particularly in persons who have been doing hard work while exposed to high temperatures. These cramps are extremely painful, and the attacks may last from 12 to 24 hours. The muscles may remain sore and the patient weak and listless for several days after the seizure, although the attacks vary from a slight cramp in the abdomen or limbs to general cramps in all the muscles.

Treatment: In heat stroke (heat fever) the temperature of the body should be reduced as rapidly as possible. Place the patient in a tub of cold water, add ice, and rub the body briskly with the hands, keep an icebag to the head and continue the treatment until the temperature is reduced to 100° F., as shown by the thermometer inserted in the rectum.

In heat prostration, with cool skin, stimulate the patient and rub his body and limbs. Hot rich soup given with the patient at rest in bed has proven very useful in this condition. It is necessary that the soup should be hot; and even when there has been vomiting, administering hot soup has both stimulated the patient and stopped the vomiting. This should be repeated as soon as the patient feels at all hungry, and in the meantime hot tea should be given. In the more severe cases hot food and drink will not suffice and then the patient should be given stimulants, kept warm by blankets and hot-water bags, and a mustard plaster placed on the abdomen; and if the cramps are severe the muscles should be vigorously rubbed.

HEADACHE.

Headache is a symptom of disease of some part of the body. It generally accompanies the acute fevers, is associated with constipa-

tion, disorders of the stomach, liver, kidneys, and genital organs. Eye strain is a frequent cause.

Treatment: Remove the cause if possible. Open the bowels with a dose of castor oil or salts, and give 10 grains of aspirin, and repeat in three hours if necessary. A little hot tea and toast should be given with this medicine to prevent nausea. A medical officer should be consulted if this does not benefit the patient.

DISEASES OF THE EYE.

Stye.—A stye is a pustule which forms on the margin of the eyelid around an eyelash. The lid is inflamed, painful, and has the general appearance of a small boil.

Treatment: Pain may be relieved by applying squares of gauze wrung out of hot boric-acid solution. When the stye ruptures, keep the lid clean with frequent washings with boric-acid solution in order to prevent recurrence of more styes.

Inflammation of the eye.—In all inflammations of the eye ascertain at once if the individual has the clap. If he has, the chances are that you are dealing with a very severe condition, which should be brought to the attention of a medical officer immediately.

Simple inflammation of the eye.—This is caused by irritation, such as exposure to the wind or dust, by foreign bodies in the eye, and frequently by the fumes of turpentine contained in paint used in confined places, as when painting double bottoms, etc.

Symptoms: The eye is bloodshot and watery, the patient complains of pain, the sensation of sand in the eye, and heat. A thin watery discharge appears, which tends to stick the lids together.

Treatment: Turn back the upper lid, pull down lower lid, remove all small particles of dust and dirt by gently wiping the lid with cotton loosely wound about a match stem. To turn back the upper lid lay a match stem lengthwise along the middle of the lid, press down gently and at the same time pull upon the lashes. Have the patient look in all directions, for by this means particles of irritating matter which do not at first appear may be brought to view. After having removed all the irritating particles, wash the eye with warm solution of boric acid, using a small piece of cotton saturated with this solution held very close to the inner angle of the eye. Do not drop solution on the eye.

Gonorrheal inflammation of the eye.—This is usually found in patients who have the clap, and is caused by the individual rubbing or touching his eye after handling the penis and not having washed his hands. The inflammation is very rapid and very severe. The lids are swollen as are the inner parts of the eye, and thick pus soon begins to discharge.

Treatment: The sound eye should at once be protected by a shield consisting of a watch-glass crystal fixed over the eye with adhesive plaster. The infected eye should then be washed frequently with boric-acid solution, and a little vaseline applied to the edges of the lids so they will not stick together and retain the pus. Cold applications should then be applied to the infected eye, and this may be done by placing small pieces of cloth on a cake of ice and transferring them to the eye, making the changes frequently.

In all cases of inflammation in the eye the patient should be kept in a dark place, or the eye protected from the light by a shield.

EARACHE.

Earache is due to so many different causes that a medical officer should be consulted as soon as possible. To relieve pain apply hot-water bag, move bowels freely with 2 tablespoonfuls of castor oil, and, if pain continues and is severe, give phenacetin (5 grs.) every three hours.

TOOTHACHE.

Usually due to a decayed and hollow tooth. Remove particles of food from the cavity and plug with a small piece of cotton saturated with oil of cloves, and over this place a small piece of dry cotton so as to protect the tongue and mouth from the irritant effect of the oil of cloves. Apply the hot-water bag, and if necessary give phenacetin (5 grs.) every three hours.

COMMON SKIN DISEASES.

The following is a brief description of a few of the commoner skin diseases which may be found on board ship. This outline is brief and only intended to enable the layman to recognize, in so far as he may be able, the difference between such skin conditions. As it is not possible for one to recognize diseases of the skin without considerable experience, it is recommended that in treating all skin diseases only the simplest applications be used at first. Frequently the simplest applications will bring about a cure or a very great relief of the condition at hand. The frequent use of strong applications in order to hurry the process of healing is not to be advised, and usually results in a much worse condition than at first encountered.

ABSCESS, BOIL, CARBUNCLE.

Abscesses may be located on any part of the body and consist of large or small areas of acute inflammation, red, hot to the touch,

and painful both when handled or as they increase in size and tension.

Boils are small abscesses and have practically the same appearance as the former.

Carbuncles are large areas of more or less rounded, flat, deep-seated inflammation of the skin and tissue beneath it, and end in a large amount of the tissue coming away leaving several openings throughout the area involved.

Pimples are small, pointed, slightly elevated inflammatory spots. The tops of these pimples may be bright red or may present a sort of blister containing yellowish matter. Pimples usually occur on areas where many blackheads may be seen.

The cause of these conditions is an infection of the skin about small hair follicles or the pores of the skin by various bacteria. The inflammation set up by these bacteria progresses until the condition seen results.

These conditions are not contagious in the meaning of being transmitted from one person to another, but the number of abscesses, boils, carbuncles, may be increased by the infection of new areas of the skin by material from the original sore.

The general appearance and symptoms of all these conditions are as follows: There is a more or less rounded area of intense redness, swelling, a feeling of heat, and pain. The tissue surrounding the sore may be more or less firm and shows a blush running into the sore. When this area is touched more or less tenderness is experienced by the patient. Should these conditions be large or extensive the patient usually has a rise of temperature. Painful glands may be found in neighboring regions—noticed as little, tender kernels under the skin.

Treatment: This consists of the thorough cleansing of all areas with soap and hot water, and the application of antiseptic solutions. The area may be painted over with tincture of iodin. Should the center of an abscess, boil, or pimple seem soft under the finger, pus is probably present. This requires an opening and evacuation of the pus. In opening great care should be taken not to cut any deeper than is necessary. Upon the evacuation of the pus a clean sterile dressing of gauze to catch the discharge should be applied. Do not place absorbent cotton against the wound. On the following days these spots and all areas should be cleaned with soap and water or antiseptic solution, and redressed with fresh gauze until healed.

The treatment of carbuncle is of such a serious character that all such cases should be referred as soon as possible to a doctor. Meanwhile antiseptic dressings may be applied, such as painting with tincture of iodin, or using a solution of bichlorid of mercury, one tablet to five pints of water. In using the latter large pads of gauze

are wrung out in this antiseptic solution and placed over the area while still wet, and they are continually moistened with the solution. Should the carbuncle rupture and begin to discharge matter before the services of a medical man are obtainable, the whole area should be kept scrupulously clean with soap and water and large dressings of gauze be placed over the whole area to collect the discharges. These should be frequently changed.

All applications and large dressings to these areas should be placed on as hot as the patient can comfortably stand. Do not poultice these areas with any other means, as to do so only invites further infection. Make these dressings of absorbent cotton of considerable thickness, folded up within one or two layers of gauze so that no cotton may escape. They should be wrung out and then flattened to a satisfactory thickness.

COLD SORES.

These are acute inflammatory sores usually found about the nose, mouth, and on the cheek. They are occasionally found about the head of the penis.

Cause: They may be due to fevers, cold in the head, digestive disturbances, or exposure to heat, such as the sun or fireroom. Those about the penis are usually due to uncleanliness and moisture. They are not contagious.

The appearance of the eruption is that of several pinhead to small-pea-sized blisters usually grouped about the part involved. They seem to be on the very surface of the skin and to contain a clear fluid. There is usually a little redness about the edge. After a few hours the blisters seem to contain a milky or yellowish material. They do not rupture of themselves, but should they be ruptured the secretion forms a yellowish crust. Should the blisters be allowed to continue their regular course without rupturing, the secretion within them is gradually absorbed, the blister dries up, and a crust is formed which soon becomes detached and falls off. There is no itching.

Treatment: Consists in keeping the areas clean with soap and water and the application of a dry powder, such as any ordinary talcum or dusting powder. Should the blisters become ruptured the area should be thoroughly cleaned with warm water and soap, and an ointment, such as olive oil, lard, or vaseline, applied to the abraded surfaces. Should large areas appear they should be covered over with a gauze dressing and bandaged.

HIVES.

This disease is an acute itching condition which arises within a few hours apparently without cause.

The cause of this condition is usually, however, some indiscretion in diet. This may consist of eating too much food of an indigestible character or eating food which has become spoiled, such as bad fish, bad canned goods, mouldy cereals, etc. The disease is not contagious. The appearance and symptoms of the disease consist of whitish or reddish raised places on the skin, varying in size and shape. They may appear on any portion of the body, but usually occur about the trunk, particularly about the areas of constriction by the clothing. These elevated places have a sensation of burning, tingling, or pronounced itching which increases with scratching. Continued scratching sometimes increases the number of spots or the size of those already present. Between the spots the skin appears normal. The membrane within the mouth and throat may also be involved in the eruption. Should the top surface of these areas be scratched off, a certain amount of serum will exude.

The treatment consists in placing the man on a simple diet of bread and milk, cereals, rice, tapioca, etc.; giving him a large dose of castor oil, about an ounce, or some other effective cathartic, such as magnesium sulphate; the removal of irritating clothing, such as woolen goods; giving a warm bath with baking soda in the water in proportion of an ounce to a gallon; and the application of some solution to overcome the itching, such as a 1 per cent solution of carbolic acid.

IMPETIGO.

This is a simple inflammatory condition which seems to be on the very surface of the skin.

The cause of the condition is an infection by the various bacteria which produce pus.

This condition is contagious and may be contracted by contact with one having the disease. The secretion from the sores is the infective principle.

Its general appearance at first is similar to that of the simple cold sore. It is usually located about the ears, nose, the mouth, or on the cheek. The disease may be contracted in a barber shop. The secretion from one sore if spread about upon the skin will produce other sores. The general appearance and symptoms of the disease are those of an eruption of several separate or run-together, rounded, flattened, blisters, soon becoming of a yellow purulent (containing pus) character and drying to a thin, yellowish crust. At first the blisters are small and gradually become larger, seeming to raise a very superficial layer of the skin, underneath which the yellowish matter collects. They are located in general as described above, but may also appear on the hands, about the fingers, and on the lower

arms about the wrists. Should one of these blisters be broken the surface will be found to be red, moist, and as if sandpapered, and to be secreting a very thin, watery, or purulent fluid. The place appears very much like a very superficial burn from a hot iron. Fresh spots come out from time to time, gradually dry up, the crusts drop off, the course of the disease being from several days to several weeks, depending on the treatment. There may be slight itching, but usually not. The disease may spread over the body in similar areas to those found on the face. When it occurs upon the bearded area of the face it frequently becomes of a chronic type, difficult to treat.

The treatment of this condition consists of scrubbing all areas thoroughly with soap and hot water, removing all crusts and secretions. All blisters are broken open and crusts that are adherent are taken off. When all areas have been thoroughly cleaned they should be anointed with a simple ointment like plain vaseline, lard, or boric-acid ointment. Should the condition persist the common sulphur ointment should be used. When the eruption appears on the bearded portion of the face the patient should shave every day. When the eruption has become cured he should throw away his shaving brush, his soap, and have his razor thoroughly sterilized. Unless this is done new eruption will be produced. The treatment should be carried out every day until the condition has been cured. It is a highly contagious disease and everyone in the crew may be infected unless very radical means are taken to remove the source of infection. The patients should be cautioned not to be shaved in a barber shop.

INFLAMMATIONS DUE TO EXTERNAL IRRITANTS.

Under this heading may be considered the various forms of skin irritations due to the trades, such as baker's itch, fireman's itch, etc., stings of insects or jellyfish, irritations produced by chemicals, and poisonous woods and vines, such as poison ivy.

The cause of these conditions is usually the irritant substance to which the individual is exposed. Chemical irritants used in the trades, such as acids, alkalis, and turpentine, produce certain irritations of the skin. The various trades where these irritations may be found are bakers, flour and yeast giving baker's itch; washerwomen and washermen, with washerman's eczema; those whose hands are constantly wet in strong solutions of soap and water, dyes, chemicals, paints, etc., as well as among firemen and coal passers, who are exposed to great extremes of heat, which is also true of bakers and cooks. Irritation may be found upon the hands of those who are accustomed to handling chains and ropes at sea due to the irritation of salt water. When once the irritation is started, if the man con-

tinues in the particular trade or in the handling of water and soap solution, salt water, and other irritants, the condition becomes gradually worse and finally chronic.

Certain forms of jellyfish found in salt water produce a marked irritation due to the sting from their nettles. Stings are often of a serious character and produce scarring of the skin. Frequently patients suffering from such stings suffer a great deal of distress and shock, and if in the water should be removed on deck as soon as possible.

None of these conditions are contagious.

The general appearance and symptoms produced by the irritants of the trades are similar to those exhibited by what is commonly known as ivy poisoning. These symptoms may come on at once or may not come on until after a continued and prolonged exposure to the irritant. The appearance of the skin is first that of a general ruddy blush, attended with burning and itching sensations. Following this there appears upon the skin in groups of more or less large extent small pinhead-sized blisters containing a clear serum. The disease progresses from place to place where the irritant has been applied, the blistered areas run together and soon form large areas. Some of the blisters may rupture and soon the secretions in all places become of a yellowish purulent character. Following the rupture of many of these blisters more or less coagulation of the exuded serum takes place and crusting and scabs form. More or less itching is present. The eruption is usually confined to the area which has come in contact with the irritant.

The common appearance of bites and stings from insects is more or less familiar. These usually consist of slightly raised whitish or pinkish-red elevations attended with a certain amount of itching. Scratching uncovers the top, from which pours out a certain amount of serum.

The sting of the jellyfish usually presents a more or less rounded patch of varying size, which is pink-red and seems to have a number of red dots throughout its surface, tends to be slightly raised, and itches considerably.

Treatment of these conditions is more or less similar. The patient should be removed from the occupation, or from the immediate vicinity of the irritant. For all diseases produced by chemical and external irritants of the poison ivy variety, the parts should be thoroughly scrubbed with soap and water and alcohol when exposure has been to poisonous plants, with weak acid solution when exposed to strong alkalis, and with weak alkaline solution when exposed to acids. The whole area should then be dusted with an ordinary dusting powder and protected with a dressing of gauze in order to prevent rupture of the various little blisters. Should extensive areas

become involved with rupture of practically all of the blisters it will be necessary to remove the crusting and secretions and dress the area with some form of ointment like plain vaseline, lard, olive oil, zinc-oxid ointment, boric-acid ointment, and to protect the area by a covering of gauze and bandage. Those trade inflammations which have reached a more or less chronic state should be referred to suitable medical care. Many of these conditions can be relieved by satisfactory treatment.

The treatment of stings of insects is simple and consists of the application of some cooling, evaporating lotion such as the 1 per cent carbolic lotion, weak solutions of ammonia water, and alcohol.

Stings by jellyfish require putting the patient to bed, thorough scrubbing of the area with soap and water and alcohol, and the application of a cooling lotion or dusting powder.

THE ITCH (SCABIES).

This is an itching disease (known as the seven-years' itch, etc.) found among people living in uncleanly surroundings and habits.

The cause of scabies is the itch mite. It is therefore a contagious disease and may be passed from one to the other by close contact. The itch mite travels from one patient to another through the medium of the clothing, the towels, the bed clothing, personal articles, etc. The most common way of passing the disease from one to another is in having two or more persons using the same bed and same clothing.

The eruption varies according to the duration and extent of the disease. The eruption is located for the most part about the folds under the arms, in the groins, the lower abdomen and thighs, and around the genitals. It may also appear between the fingers and around the wrists. The usual picture is that of a number of small pimples from which the tops have been scratched or whose tops appear like small water blisters. Surrounding a group of these pimples will be numerous scratch marks made by the nails of the patient. Should the disease be of some duration there may be smaller or larger areas which are pretty well denuded of the skin. Some of these areas may contain a purulent matter and may be covered over by scabs. Between the fingers and possibly on other portions of the body may be found small black irregular lines. In these black lines may be found the small itch mite. Accompanying the disease is an intense itching, which occurs chiefly at night. Given, therefore, a case of itching at night, upon removing the clothing the appearance of an eruption around the arms, around the groins, around the genitals, about the wrist and between the fingers indicates that the patient probably has the itch.

Treatment: The treatment should be carried out in the following way until the disease is eradicated: Upon going to bed at night the patient takes a hot bath with plenty of soap. The surface of the skin is thoroughly scrubbed, particularly in the vicinity of the eruption. Following this bath an ointment, consisting of sulphur and vaseline, commonly known as the official sulphur ointment, in the proportions of about 1 teaspoonful of sulphur to the ounce of vaseline, is now rubbed thoroughly into the skin from the collar bone entirely over the body to the soles of the feet, particularly in the vicinity of the eruption between the fingers, between the toes, and in the folds. There is no occasion to apply the ointment above the collar bone, as the disease seldom attacks that portion of the body. The patient should now put on clean night clothing and the bed linen on his bunk should also be changed to clean linen and blankets. The next morning the patient takes another soap and water bath and puts on fresh, clean underclothing which has not been worn since laundered. The next night the patient goes through the same performance. He takes a hot bath with soap and water, applies the ointment, and wears the same clothing and sleeps in the same bed as on the previous night. The next morning he takes another hot water and soap bath, and puts on either clean clothing or the clothing he has worn the day before. This application of hot water and soap baths and sulphur ointment is carried out for three or four nights and then freshly laundered clothing is put on, following a most thorough soap and water bath. The bed clothing is again changed, so that upon retiring at night he sleeps in a fresh bed. The patient should continue to take a hot soap and water bath daily for several days in order to remove the ointment and sulphur from the skin, and also the effects of the disease. After a few days have elapsed if there is no return of the eruption and the itching is subsiding the patient has probably been cured of the condition. Should, however, the eruption continue and the itching remain unabated a second series of treatments as described above should be gone through with. Too long an application, however, of these treatments is not advisable, as the sulphur tends to cause an irritation of the skin which may cover up the scabies.

It is possible for the eruption to recur after a number of treatments have been applied to the patient. This is due to a continued existence somewhere on the skin of the itch mite. There may be a recurrence of the condition due to reinfection from another source.

When a case of scabies is discovered the case should be isolated from the remainder of the crew. Clothing and effects should be fumigated by heat in order to destroy any parasites which may be hiding in the clothing. This fumigation is best done by live steam. Should the eruption fail to respond to treatment and the patient

continue to show active signs of scabies he should be transferred to shore or to some hospital where he can receive adequate treatment. It is not best to keep such cases on board ship for any great length of time.

LICE (VERMIN).

There are three forms of lice, which vary in size and somewhat in appearance.

The condition is contagious, as these parasites can be conveyed from one person to another through the medium of comb and brush, using the same bed and sleeping clothes, the use of the same outer garments, the presence of the vermin within the quarters inhabited by all the crew, and in other ways.

The general appearance of symptoms on the skin are represented by scratch marks, and certain other signs of irritation induced by the parasites. The main symptom is that of itching.

The scalp.—The usual appearance upon the scalp is that almost all the hairs show the presence of a little protuberance along their shafts. There may be one or more of these protuberances, which are called nits. These nits are the eggs of the parasite, and are attached to the hair by a gelatinous substance. After a time these nits hatch out into small parasites. At one and the same time there may be seen live, both large and small, parasites, and also nits on the hair. The presence of these produce an irritation about the ears, sometimes about the nose and the back of the neck.

The treatment of this condition consists in shaving the entire scalp as closely as possible in order to remove all hair and nits. This is the most effective way of removing the condition. Should it not be practicable to shave the head, the scalp should be done up in a towel and a small amount of crude petroleum (coal oil) should be thoroughly rubbed in among the hairs. This should be allowed to remain for about three or four hours and then the entire scalp shampooed with soap and water. Following the soap and water the entire hair of the scalp should be combed with a fine comb and vinegar. This form of treatment should be carried out for three or four days till all evidence of the condition, particularly all the nits, have been removed. Care should be taken subsequently to avoid a recurrence of the condition by watching for the appearance of nits.

The genitals.—The louse about the genitals is a very small, rounded parasite, with six legs, each terminating in a claw, by means of which it clings to the hair. It is commonly known as the crab louse. It deposits nits upon the hair of the parts in similar ways to the louse upon the scalp. The presence of this parasite produces a certain amount of irritation about the genital parts and an intense itching. It is frequently passed from one person to another by means of the water-closet seat.

The treatment of this condition consists in shaving the entire area surrounding the genitals. It may be necessary to remove the hair on the inner side of the thighs. Diligent search should be made for the nits on the hairy portions of the body covered by the clothing, as the nits are frequently found on the hair of the lower legs, on the feet, frequently upon the hair of the arms, but seldom above the collar bone. Wherever the nits are found the hair should be removed. Should this not suffice the areas involved should be anointed with the official mercurial ointment. This ointment is commonly known as bluebutter. With the removal of the parasites the irritation of the skin subsides.

The body.—The body louse is a large-sized parasite—the largest of the three in question. It inhabits the clothing of the patient, usually seeking the seams of the garments. It is not found upon the skin, but produces a certain amount of irritation, causing the patient to scratch, and there are usually long scratch marks about the shoulders, shoulder blades, and the body.

The treatment of this condition consists of changing the entire outer and under clothing, and any other which may be infected. The bed and bed clothing may be infected by the parasite. All these should be sterilized by the application of live steam or by ironing all the clothing with as hot an iron as can be used without burning. This serves to destroy the parasite and also its eggs. The patient should receive a thorough bath with hot water and soap, and a fresh outfit of clothing. All itching should subside and the condition of the skin disappear upon removal of the infected clothing.

When any one of these parasites appears among the crew diligent search should be made for the source or sources of infection. Other persons should be sought who are suffering with infection of the hair of the scalp, and those who may have body lice within their clothing or within their effects or bedding. The water-closet seats should all be investigated and should be gone over with a strong antiseptic solution, such as bichlorid of mercury—one tablet to a pint of water. All these seats should be scrubbed with soap and water and then the application of bichlorid solution made.

NETTLE RASH.

Nettle rash and tetter are simple inflammatory conditions known to the layman by these names—nettle rash being similar to hives and produced by some simple irritant, chafing of the clothing, etc., and tetter being a mild form of eczema. These simple conditions usually appear as a reddish blush over the skin, attended with some itching, and can readily be relieved by the application of soda bicarbonate (baking soda) in water, a 1 per cent carbolic lotion, or the applica-

tion of zinc-oxid ointment, or plain vaseline. These conditions usually come under the heading of inflammations due to external irritants (see p. 60).

RINGWORM.

Ringworm is a disease of the hairs and hair follicles of the scalp and the beard, as also of the nonhairy portions of the body. The cause is a vegetable fungus similar to a yeast.

The disease is contagious and easily contracted by contact with a person having the disease, or from a cat, dog, or other pet having an eruption similar to mange.

The scalp.—Ringworm of the scalp usually consists of several rounded areas varying in size, from which the hairs appear to be broken off. These hairs project but a very short distance above the surface of the scalp and may be split. The surface of the scalp about these spots is covered by a sort of scale. The spot may be somewhat raised above the surrounding surface. There is a little redness surrounding this area. There is a certain amount of itching, which causes the patient to scratch the spot. While scratching, the fungus is forced in under the finger nails, and by this means new areas are started wherever the patient may again scratch and break the skin. By means of this scratching the small area may be increased in size. Frequently the disease spreads rapidly until larger areas of the scalp are involved even to the extent of the entire scalp. The color of the condition is usually that of dirty yellowish scale. The center of the spot clears up as the outer edges spread out.

This form of ringworm occurs usually only in children.

These is, however, a condition called favus which resembles ringworm of the scalp and occurs both in children and adults. It is characterized by a mousy odor, dry, sulphur-yellow colored scales, and consists of scooped out, single or many, small spots, which may run together into a large one. This advances much more slowly than ringworm. The cases are usually chronic and last for a number of months.

The beard.—This is commonly known as barbers' itch. This may be obtained in the barber shop or from using such things as the shaving brush of another person suffering with the disease. There appear on the surface of the skin of the face, involving the bearded area, rounded spots, the center of which may be more or less free, while the edges show a raised line of redness and small pin points. The hairs are very loose and may be pulled out without pain. The line is usually crusted over with yellowish matter. There is a certain amount of itching. The continued use of an infected shaving brush, infected soap, or an infected razor spreads the condition over the

skin of the patient's face or upon the faces of other persons using them.

The body.—Ringworm of the body usually appears on certain areas and may consist of one or more rounded spots varying from the size of a dime to a half dollar, having more or less the same character as on the beard or on the scalp. These areas usually have a slightly raised red, scaly edge, the center of the spot being more or less clear. There is some itching and scaling.

The treatment of all these conditions consists of scrubbing the areas with hot water and soap, shaving the entire scalp if affected, shaving the face daily if affected, and the application of the common sulphur ointment. Old hats should be destroyed. New hats should be protected inside by a piece of cloth or paper, which may be burned daily and a fresh piece put in. The clothing of the body should be sterilized with live steam. Shaving gear, combs, and brushes should be destroyed and new ones used after the condition is cured.

ULCER.

In this connection the ulcer of the lower legs is the one which will be considered, as this is the commonest form.

The causes of these ulcers are usually varicose veins of the legs, injury which has produced a chronic ulcer which has failed to heal because of neglect, or syphilis.

These ulcers are not contagious.

They usually have the appearance of scooped-out areas with overhanging edges. These edges are more or less thickened, dull red, and somewhat raised and irregular. The skin surrounding the ulcer is of a dull-reddish hue, showing interference with the circulation. The base of these ulcers is usually of the appearance of raw beefsteak, upon which is a shiny gelatinous secretion. This secretion may take on a purulent character. Ulcers due to varicose veins or to a chronic injury, long untreated, usually present a surrounding area of more or less chronic eczema or irritation of the skin. This area is more or less scaly, itching, and shows a tendency to break out at any time. An ulcer due to syphilis is usually of an acute character, more or less tender; sometimes bleeds somewhat easily, and shows no tendency to heal. Varicose veins may be evident or there is a history of old injury or syphilis.

The treatment of those ulcers due to *varicose veins* and to *injury* consists in placing the man in bed with the leg elevated in order to restore the circulation to something like normal, and a thorough cleansing of the skin surrounding the ulcer and of the ulcer itself. This cleansing should be made with soap and water and possibly a scrubbing brush, and an antiseptic solution, such as the bichlorid

solution—1 tablet to 3 pints of water. For the first few days the application of hot antiseptic dressings frequently during the day should be utilized. As soon as the ulcer begins to take on a more clean, healthy, bright-red appearance the use of dry, clean dressings of plain gauze with a bandage is necessary. Should varicose veins exist it would be preferable to bandage the leg from the toes to well above the knees, particularly if the patient is to be up and about. Should the ulcer show no tendency to heal, clean antiseptic dressings should be continued and the case referred as soon as possible to medical care.

The treatment of ulcer due to *syphilis* should be referred to a medical officer as soon as possible. Meanwhile the ulcer should be treated as in the case of the varicose ulcer, and kept clean and protected by clean gauze dressings and bandages. The cure of such ulcers depends upon the administration of antisyphilitic treatment and is beyond the attention of the layman.

FOUL SMELLING AND SWEATING FEET.

The cause of these conditions may be briefly stated as physiological or due to some contributing influence. Excessive sweating of feet may be found among the engine-room force as the result of their standing on hot metal most of the time. The foul smell may be due to lack of cleanliness or to other cause.

The feet being constantly bathed in perspiration, the skin of the soles of the feet, and particularly around and between and under the toes, is more or less macerated, and often whitish from the presence of excessive moisture. About the heels and around the ball of the foot and under and between the toes there may appear a certain amount of redness and tenderness. Between the toes there may be more or less maceration, cracks, peeling of the skin, soft corns, and about the heel there may be a tendency for areas of skin to peel off. Frequently the skin of the heel is tender. In summer the sweating of the feet is quite excessive, so much so that the shoes become wet with perspiration. In winter the perspiration may be such as to cause the feet to be more or less cold all the time. Persons with excessively sweating feet suffer from chilblains in cold weather. These are noticed as small, rounded, reddish, tender areas about the toes and other portions of the feet.

Either as the result of lack of cleanliness, the wearing of the same shoes constantly, or from some physiological disturbance of the sweat glands of the feet, a very foul odor may be present. This odor may be so foul as to be very embarrassing to the person, and particularly annoying to those who have to occupy the same quarters with him. This offensive perspiration frequently causes others to persecute the unfortunate one suffering with the condition.

The treatment of this condition consists in having the feet thoroughly scrubbed with soap and hot water twice daily, followed by douching with cold water. The toenails should be cut and cleaned out beneath the nail. Every effort should be made to render the foot absolutely clean. In those cases where there is only excessive sweating, the wearing of a fresh pair of white socks each day, or changed more than once during the day, if perspiration is great, with the usual dusting powder to encourage dryness of the foot, the powder being dusted over the foot in the sock and into the shoe before the socks and shoes are put on, will be all that is necessary to alleviate the condition. With those cases where the sweating is foul smelling, relief is sometimes obtained by painting the entire skin of the foot after the bath with a 10 per cent solution of salicylic acid in alcohol and water, equal parts. It is necessary in these cases that new shoes be obtained and a pair of shoes be worn but one day and allowed to dry out for 24 hours before being again worn. A 1 per cent solution of formalin may also be applied to the foot in the same manner as the salicylic acid solution. These solutions should be brushed over the foot with a camel's-hair brush or with a cotton swab, paying particular attention to the entire skin of the sole of the foot, between and underneath the toes. Should it be impossible for the man to obtain new shoes, the old shoes should be thoroughly painted inside with the same solution in the same manner. The use of perfumed waters and talcum powders only add to the disagreeable odor.

Should a man be particularly objectionable because of the foul odor of his feet it is best to rid the ship of him.

CHAPTER IV.

HOSPITAL FACILITIES.

Officers appointed to and men shipped in the Naval Auxiliary Service are entitled by the terms of their contracts with the United States to treatment in naval hospitals and on naval hospital ships. By arrangements between the Navy and Treasury Departments they will also receive treatment in hospitals of the United States Public Health Service, and under conditions stated in "Regulations for the Naval Auxiliary Service," will be allowed treatment in civil hospitals, when naval and public health hospitals are not accessible.

The accounts of sick persons transferred to a hospital or hospital ship should be kept on a separate roll, and the rations of such persons should be commuted for adjustment by the Auditor for the Navy Department.

Naval hospitals to which patients from the Naval Auxiliary Service may be admitted are located as follows: Portsmouth, N. H.; Chelsea, Mass.; Narragansett Bay, R. I. (Newport); New York, N. Y. (Brooklyn); Philadelphia, Pa; Washington, D. C.; Annapolis, Md.; Norfolk, Va. (Portsmouth); Port Royal, S. C.; Great Lakes, Ill. (Chicago); Las Animas, Colo. (for tuberculosis patients only); Mare Island, Cal.; Puget Sound, Wash.; Canacao, P. I.; Olongapo, P. I.; Pearl Harbor, Hawaii; Guam; Yokohama, Japan.

Members of the Naval Auxiliary Service in need of hospital treatment should always be transferred to a naval hospital if convenient to the ship. If there is no naval hospital convenient transfer should be made to a public health service hospital or one of its contract stations. The public health officer of the port, if present, should be consulted regarding hospital facilities, and admission of the patient should be made with his approval and under his directions. A list of the public health service hospitals as well as its contract stations will be found in the annual circular "Contracts for the Care of Seamen, etc.," issued by the Public Health Service. The following is an extract from the Regulations of the Public Health Service bearing on its care and treatment as patients of civilian officers and crews of naval auxiliary vessels:

Officers and enlisted men of the United States Army and Navy, and civilian officers and crews of naval auxiliary vessels, may be admitted for care and

treatment as patients of the service only upon the written request of their respective commanding officers. Every such admission shall be immediately reported to the Surgeon General by the officer in charge of the station, on a daily report (form 1957) or relief certificate (form 1916), accompanied by a copy of the request upon which such officer or man was admitted. They will be furnished treatment at stations of the first, second, and third class only. The rate of charge to be made for the care and treatment of the said officers and men will be fixed by the department at the beginning of each fiscal year, and will be announced to officers and others in the annual circular entitled "Contracts for Care of Seamen." Patients of the above-named classes are not subject to the provision requiring transportation to marine hospitals.

Expenses occurring in connection with the treatment of men as patients of the Public Health Service are adjusted by transfer of appropriations between the Bureau of Medicine and Surgery and the Public Health Service, and no payment by the officer of the ship is therefore required. This proviso also applies to contract stations and for the price contracted, but the possible exception of certain diseases, medicines, and treatments at the contract price should be noted. When, therefore, special treatment not included in the contract is required, direct payment will be necessary. In emergency, and when none of the hospitals mentioned above are available, a patient may be transferred to a civil hospital ashore as provided for in Navy Regulations (R 4532).

Ration notices relating to patients admitted to naval hospitals from the Naval Auxiliary Service are forwarded to the master of the vessel on which the accounts are held. Notations are made by masters of auxiliary vessels of all men who are subsisted in hospitals, and the Auditor for the Navy Department adjusts the accounts upon receipt of the pay rolls.

It is intended and desired that masters of auxiliary vessels consult freely with medical officers of the Navy, whenever opportunity offers, both ashore and afloat, regarding the care and treatment of the sick, as well as the general health of the crew and the sanitation of the ship. If urgent the medicine box of the ship may be replenished from medical stores of a yard, station, or ship. The medical officer of a yard or station will be found at the dispensary, where, with the approval of the commandant, assistance and advice in the treatment and care of the sick may be received.

An officer or man actually employed in the Naval Auxiliary Service who is absent from his duty for treatment in a hospital, or on board a hospital ship or other naval vessel, shall while so absent from duty receive half pay, excluding the day of admission, and including the day of discharge; except where such absence is due to venereal disease of the officer or man, in which case he shall receive no pay while so absent. (Changes in Reg. for N. A. S., 1914, No. 13, par. 95.)

Should an officer or man discharged from treatment in a naval hospital be retained in the hospital for subsistence awaiting further disposition he will receive full pay from, but not including, the day of his discharge from treatment. The pay officer who was authorized to pay the officer or man while in the hospital will be informed by the medical officer in command of the hospital of the date of discharge of the officer or man from treatment and also the date of his final discharge from the hospital. Upon discharge of the officer or man from the hospital the commandant will direct that the pay officer who paid him while in the hospital send to the master of the vessel on which his accounts are carried a statement of the officer's or man's accounts with the request that the account be closed on that vessel from a specified date, such date to be the day of final discharge from the hospital.

The half pay of a member of the crew of a vessel of the Naval Auxiliary Service when at a hospital in the United States terminates when his term of shipment expires, and he shall be given his discharge at the expiration of the term for which he shipped. He may be retained for treatment. When at a hospital on a foreign station his half pay continues while at the hospital and until regularly discharged from the Naval Auxiliary Service, even after his term of shipment has expired.

Officers and men, when appointed to or shipped in the Naval Auxiliary Service, shall contract to have checked against their accounts the sum of 20 cents a month on account of the naval hospital fund, and shall, when sick and actually employed in the Naval Auxiliary Service, be admitted to treatment in hospitals or on board hospital ships on request of the master of the vessel on which they are serving, approved by the senior officer present. When not in the presence of a naval officer and in foreign waters, officers and men may be sent to hospitals by order of the master, and the expense of such treatment charged against the naval hospital fund. The master will note in the log when officers or men are sent to or received from a hospital.

Officers and men of the Naval Auxiliary Service are entitled to admission to the Government Hospital for the Insane. In case of an insane officer or man admitted to a hospital other than a naval hospital, or one who may become insane while a patient at a hospital other than a naval hospital, the same arrangements for his transfer to the Government Hospital for the Insane, near Washington, D. C., will be made as in the case of officers and enlisted men of the Navy.

The master will check the pay account of each officer and man at the rate of 20 cents per month, in the column provided for that purpose.

Expenses of medical treatment not in hospital will be charged against "Contingent, Bureau of Medicine and Surgery."

In preparing vouchers covering subsistence of officers and crew the master will claim credit therein only for the time during which such persons were subsisted by him. He shall furnish with pay rolls tickets of admission to and discharge from hospitals, and attach to his monthly returns a statement giving the names of officers and crew who were subsisted in hospitals or on board naval hospital ships during the month, and the number of days that they were so subsisted. In computing the number of days subsisted in hospitals the day of admission will be excluded and the day of discharge included.

The following form of contract is to be signed by persons appointed to or shipped in the Naval Auxiliary Service:

I, _____, if appointed to or shipped in the Naval Auxiliary Service, hereby contract and agree to have the sum of 20 cents currency of the United States checked against my pay each month, to provide for my admission and treatment in naval hospitals or on board naval hospital ships when sick and actually employed in the Naval Auxiliary Service.

When an officer or man of the Naval Auxiliary Service is sent to a hospital the master of the vessel to which he is attached will inform the supervisor of naval auxiliaries of the fact, and in the case of a man will send an extract from the shipping articles covering all information thereon recorded in his case. The master will also inform the supervisor when officers or men who have been patients in hospitals return on board.

Due to the uncertainty of the movements of vessels of the auxiliary service, whenever an officer or man of the service is transferred to a hospital for treatment, his personal effects shall be sent with him.

When after a sufficient period it appears in the case of an officer or man in the hospital that the disorder is not susceptible to cure, or that the period of treatment will be much prolonged before the officer or man can be restored to duty, a medical survey shall, when practicable, be held.

The board may make one of the following recommendations:

(*a*) Discharge from the Naval Auxiliary Service (provided the patient is in a naval hospital).

(*b*) Furlough without pay or with one-half pay.

(*c*) Continuance in hospital for further treatment.

In making recommendations due consideration will be given to the length and character of service of the patient, the causes leading to his disability, and whether upon discharge from the service his disability will prevent him from earning his support. In all cases where discharge is recommended the board shall state whether or not in its opinion the physical disability of the patient is such as will prevent him from engaging in work for his support. This information is necessary for the guidance of the approving authority.

Paragraphs 4 and 5 of Article 3669, Navy Regulations, are held to apply to the Naval Auxiliary Service:

4. No payment of money shall be made to any enlisted person of the Navy or Marine Corps at a hospital without the approval of the medical officer in command thereof.

5. No payment of money shall be made to any enlisted person of the Navy or Marine Corps under treatment at a hospital without the approval of the medical officer in command thereof.

DENTAL TREATMENT.

The professional services of dental officers of the Navy shall be available for officers and men of the Naval Auxiliary Service, and such services are restricted to those measures which will most effectively and economically preserve the teeth of the personnel and insure physical fitness. (Department's fifth indorsement, 1569–355, Nov. 23, 1914, at M. & S. No. 126472.)

CHAPTER V.

DEATHS.

The master shall cause to be entered in the log book the name and rank or rating of any person who may die on board, and a statement of the cause and of the exact time of his death.

He shall report to the Bureaus of Navigation and Medicine and Surgery, by separate telegrams, any deaths that may occur on board. In addition, information of the same shall be forwarded to the nearest relative or legal representative of the deceased, if the address of such person can be obtained. He is authorized to use the telegraph for this if deemed expedient.

In the case of officers and men of the Naval Auxiliary Service who die and are buried elsewhere than within the United States the amounts paid for funeral expenses, including preparation, incasement, and interment of remains, shall not exceed $50 each, unless due regard for decent burial renders greater expense necessary, which fact must be certified on all copies of the public bills by the officer ordering payment of the bill; such bills will be chargeable to the appropriation "Contingent, Medicine and Surgery."

Annual contracts which provide for funeral expenses for the personnel of the Navy and Marine Corps will be availed of for the necessary and proper funeral expenses of officers and men of the Naval Auxiliary Service who die at or near naval stations in the United States, and when so availed of the public bills will be made by the hospital or the medical officer of the station, according to the terms of the contract; and elsewhere within the United States such expenses will be allowed upon public bills duly prepared by the master as a charge against the appropriation "Contingent, Medicine and Surgery," when approved by the Bureau of Medicine and Surgery. Full information relating to the above-mentioned annual contracts, and as to prompt transfer of bodies to hospital for preparation, encasement, etc., and other proper methods of procedure will be obtained by the master from the commanding officer of the naval hospital or the medical officer of the station, as the case may be.

The effects of the deceased, other than jewels, trinkets, keepsakes, etc., may be sold and the proceeds of the sale credited to the accounts of the deceased; the express charges for transportation of

such effects as it may be found expedient to send to the next of kin will be a charge against "Contingent, Bureau of Navigation." When the next of kin can not be found, the effects of any value shall be sent to the supervisor of naval auxiliaries.

The master shall cause the accounts of all deceased persons to be closed as soon as possible and forwarded to the Auditor for the Navy Department.

Shipment of bodies may not be made at Government expense to a point beyond the continental limits of the United States.

Funeral expenses of those who die on board, or at a naval hospital or station, and when burial is made by naval authority, are defrayed by Government, but when the funeral arrangements are assumed by relatives or friends the expenses are not chargeable to the United States. (Dec. Comp. March 19, 1901.)

The expenses for the service of a chaplain may be allowed when the services of a navy chaplain are not available, and will be a charge against the appropriation "Contingent, Medicine and Surgery." (Manual for Medical Department, par. 3454.)

CHAPTER VI.

QUARANTINE AND DISINFECTION.

QUARANTINE.

The term quarantine has its origin from the Italian *quaranta*, meaning 40, this being the number of days for which vessels were, beginning early in the 15th century, held under observation on account of the frequent invasions of plague. It is now applied to what should be more properly known as maritime sanitation. In addition to this it is also applied to restrictions against the advance of epidemic disease on land.

The basic idea of quarantine, as indicated by this 40-day detention period, is that of detention for some definite or indefinite length of time that will render the vessel, cargo, passengers, or crew no longer able or liable to carry ashore with them contagion or infection originating in one of their previous ports of call.

The first quarantine station established—that at Venice in 1403, on a small island adjoining the city—differed in its basic idea from those stations now protecting the ports of New York, Hamburg, or London, only in groping blindness of the application of the theory of isolation, compared with the scientific and accurate periods of detention we now use to prevent the ingress of certain threatened diseases. From the earliest days up until the determination of the modes of transmission and periods of incubation of the quarantinable diseases, quarantine consisted in more or less rigorous periods of detention, even up to 100 days, hoping that in this time the disease, if present, would "wear itself out," or that the "effluvium" would be removed by the influence of sun, rain, frosts, or snows. This haphazard quarantine was extremely expensive, proceeding at times even to burning of entire ship and cargo.

Modern methods of quarantine are based, as stated above, upon known modes of transmission and periods of incubation of certain diseases which are classed as quarantinable, because they are the only ones that sufficiently menace in an epidemic form the health of a community which they might attack. The studies of the last 30 years have established that the majority of diseases are carried from

infecting person or place to a healthy person or place by certain bacteria, always of definite habits of life and methods of growth. These so-called pathogenic bacteria may be carried directly from individual to individual by contact or by inhabitation of the same space, they may exist a relatively *short* time in or on other than living material (human beings, rats, mosquitoes), as in cargoes, bedding, etc., or they may in transmission from one human being to another have what we call an "intermediate host," as the body louse in typhus or the mosquito in yellow fever.

But with this knowledge of the dangerous character of these germs, we also know that from the time they have invaded or attacked a healthy individual, a certain maximum number of days have been ascertained during which this individual will show symptoms of the onset of such disease, and if such symptoms do not develop within this length of time the disease will not manifest itself in him. This period we call the period of incubation, and it is this period that establishes the length of time that a vessel is detained in quarantine for any certain disease.

The periods of incubation, or quarantine periods, as applied to those diseases at present recognized as quarantinable by the United States Public Health Service, are as follows:

	Days.	
Plague	7	Leprosy—If an alien, not allowed to land. If a citizen, the case is dealt with according to the laws of the State of the port of entry.
Yellow fever	6	
Smallpox	14	
Cholera	5	
Typhus	12	

Emphasis has been laid upon a radical understanding of the relation between quarantine period and period of incubation; as well as a thorough understanding of what the latter means; intelligent cooperation is not possible without intelligent understanding, and cooperation between master and quarantine officials is not only a safeguard to the State but a saving for both State and master. A comprehension also of the modes of transmission of diseases and a knowledge of the significance of local health conditions in ports visited, with a view to preventing or minimizing exposure to infection for crew or cargo, will amply repay the trouble expended in familiarizing oneself with a few unfamiliar technical points.

Plague (cause *Bacillus pestis*).—Communication by bite of flea, the insect in its turn having gotten its infection from a plague-stricken individual or from an infected rat. The disease can flourish among men in close contact without intervention of the rat, or can cause wholesale deaths among a colony of rats before some infected migratory flea finds an unfortunate human being to feed upon. It has been found that the rat is far more of a menace to a community than an

actual human being dead or dying from this disease. The freedom of the rat in circulating through all parts of the ship, the ready access to the dock over unguarded lines or gangway, make the control of his actions or the suppression of his infection difficult short of exterminating all of his species aboard ship.

When a rat becomes sick with plague his coat becomes rough and he refuses food. Ordinarily rats are afraid of people and will run from them, but when they have plague they become restless, want help, and, becoming stupefied or careless of their surroundings, may appear openly where they are seldom seen. Of course during the time of incubation period, which applies alike to rat as to man in the development of the germ, ample time is given for migration from ship to dock or vice versa.

After a rat becomes sick with plague he dies in from one to three days, falling upon his side and dying in convulsions. As soon as the body cools the rat fleas begin to leave and seek another warm body, either another rat or man. It may be depended upon that if there is a plague rat in a vessel he will soon give the disease to a few other rats, who in turn will give it either to the crew, or else, by escaping from the vessel at the next port, give it to the rats in that port, who in turn will give it to the inhabitants.

The symptoms and treatment of this disease in man are given under the chapter on Special Diseases, page 47. Prevention or prophylaxis will be considered here, and may be expressed briefly as—no rats, no plague. While it is the duty of the quarantine station to undertake such ship's disinfection as is called for upon arrival of an infected vessel, or vessel from infected port, it yet is the duty of the ship's master by all means within his power to endeavor to keep the vessel under his command sanitary, so as to be neither a menace to itself nor to the port visited.

The economic damage to the vessel itself or its stores is considerable where no measures are taken to inhibit the growth of the vermin.

Efficient rat killing in naval auxiliaries is not an easy task, in view of the many compartments and openings which are the natural result of the peculiar construction and arrangement of storage spaces, etc. These compartments and openings afford comfortable places for rats to build their nests in. On the other hand, masters are familiar with the construction of their vessels and by going to a little trouble can build against the rats and force them to live in places in which they can be killed either by fumigation or by poison.

Antirat measures that should be observed are:

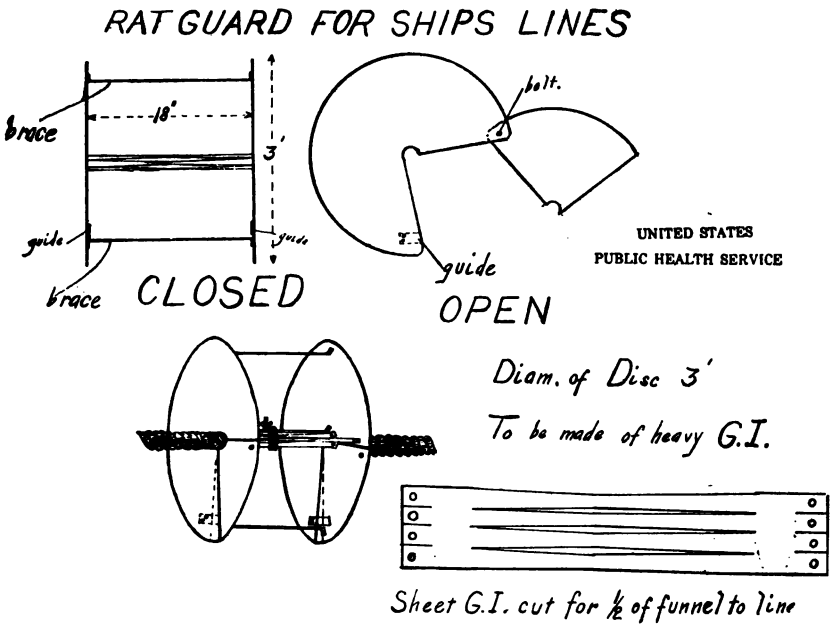
(*a*) Destruction of rats on vessels.

(*b*) Prevention of rats boarding vessels.

To effect the destruction of rats on vessels the latter should be fumigated three or four times a year by sulphur burned in pots. This will be described later in this chapter, under "Disinfection," page 84.

To accomplish the second proviso of preventing the boarding of the vessel by a fresh crop, (*a*) rat guards must be constantly maintained on all lines and shores leading to the dock, (*b*) a watch must be kept for rats attempting to run up the gangplank or brow. In addition further efficiency is secured by keeping a sharp lookout for rats concealed in loosely crated stores, by keeping the ship's food and stores carefully protected, by distributing rat poison (phosphorus or arsenic paste), and by the constant use of traps.

The accompanying illustration shows an efficient rat guard.



This rat guard is made of two disks of galvanized iron 3 feet or more in diameter, joined by four rods or braces of galvanized iron and a funnel made of sheet galvanized iron.

Each disk is made up of two segments as shown in the diagram, or the disks can be cut as in the Fox rat guard,[1] and joined on one side by a bolt that acts as a hinge, a socket being provided to lock the two segments on the other side. The two disks are joined at the center by a funnel made of sheet iron. The funnel is made up of two halves, one of which joins on the one side the two large segments

[1] Reprint No. 86, from the Public Health Reports, vol. 27, No. 23, June 7, 1912, pp. 907-1908. (See also Naval Medical Bulletin, October, 1912.)

of the disks and on the other the smaller segments. The central part of the funnel has long segments cut out as shown in the diagram.

After closing the guard over a ship's line, the central part of the funnel is tied to the line by a small piece of rope. This fastens the rat guard to the ship's line so that it can not slip, and completely closes the funnel and locks the two halves of the rat guard.

The advantage of this rat guard is that it is always at right angle to the ship's line, and it would take considerable force to deform it or to flatten it out so that a rat could easily get over it. Also this guard is easily stored away without any danger of damaging it.[1]

Yellow fever.—Cause bacterial; variety as yet unidentified. Transmitting agent, the *Stegomyia calopus*, a certain species of mosquito. With this disease it must be borne in mind that the presence in communities of this certain, easily identified species (see p. 45) is absolutely necessary for the continued existence of yellow fever, and that yellow fever can not be conveyed from person to person (even with the closest association) without the intermediate aid of the *Stegomyia calopus*. Therefore—no mosquito, no yellow fever. The yellow-fever mosquito is found nearly everywhere, but especially between 38° north and 38° south latitude. It breeds and lives in any collection of water, large or small, preferably in small protected pools, in water left in old cans, in gutters, scuppers, boats exposed to rain, etc. The female lays its eggs on the surface of the water or on the sides of the container just above the water line. The eggs are hatched and the adult mosquito ready for business in about nine days.

Yellow fever is not carried by such things as clothes, and therefore no attention need be paid to such articles, save to rid them of mosquitoes. The yellow-fever mosquito will bite at any time during the 24 hours.

Prevention lies in protection of the patient, if a case unfortunately develops, from mosquitoes by mosquito netting or wire screening, and in rigorous antimosquito measures. Sulphur should be used as described on page 84, and at the conclusion the insects should be swept up and burned, as many return to life. After fumigating the vessel in this manner sprinkle a small quantity of kerosene oil on the surface of all water containers which are not kept closed. It is particularly necessary that the water in the bilges of the vessel, and also the water in the bottom of the lifeboats, should be so treated, and this oiling must be frequently repeated for the reason that as soon as the vessel enters port a new crop of mosquitoes will come aboard.

Smallpox.—Cause bacterial; variety as yet unidentified. Transmission is direct from man to man. The naval regulations require

[1] Public Health Reports, vol. 31, No. 14, April 7, 1916, p. 880.

that all persons entering the naval service shall be vaccinated and revaccinated until either a successful "take" follows or reasonable assurance is felt that the individual is protected. This procedure should be conscientiously adhered to and the personnel periodically inspected. Before starting on a cruise which will include as a port of call some place known to be a center of much smallpox infection, it is recommended that the entire crew be again vaccinated, unless evidence is absolute of quite recent "take."

Symptoms and treatment are given on page 40. Isolation of the patient must be rigidly practiced to avoid spreading of further contagion on the ship. After transfer or death of patient fumigation of sick room and contents must be carried out with sulphur or formaldehyd.

Cholera.—Cause bacterial; the *Spirillum choleræ asiaticæ.* This is transmitted from man to man through water, milk, food, hands, uncooked vegetables, etc.

Pure food, pure water, and cleanliness—no cholera; which means that in a cholera-infected port a master should keep his crew on board, allow them to eat only food which is served steaming hot, allow them only to drink water that has been boiled, and not allow anyone to sit at table without washing his hands. In addition to this a strict guard should be kept against purchasing articles of food or bottled waters from bumboats.

Should a case develop aboard, as described on page 47, the above precautions should be rigorously carried out in addition to careful isolation and nursing of the patient. Here, as in other diseases (but particularly when the infection is carried through germs passing out with the feces) all dejecta should be treated with 5 per cent carbolic acid solution for one-half hour before being thrown overboard. Heads which are used should be flushed with fire hose and carbolic solution. Clothes and bedding must be boiled.

Typhus fever.—This is caused by a specific, recently discovered bacillus, and is transmitted from man to man by the bite of the body louse. (Typhus fever, sometimes called ship fever, jail fever, camp fever, spotted fever, must not be confounded with typhoid fever.) As its many names indicate, it is a disease occurring with overcrowded conditions where men are forced to live in close personal contact. Such conditions favor very easy access of the insects from person to person.

Prevention consists in thorough regard to cleanliness of person and surroundings, and on the part of the master such examination of the personnel as will assure him of their freedom from contamination. Treatment, if lice are found, consists in free and repeated applications of kerosene to entire hairy parts of the body, frequent washings with soap and water, and boiling or destruction of garments that are

worn next to the skin (see p. 64). Such treatments should be persisted in until all nits or developing lice, which exist as small enlargements on the body hairs, have disappeared. One application of kerosene can not be counted on in effecting this. Sulphur disinfection of infested compartments is also advisable, assisted by thorough scrubbings and painting if menace of typhus infection is present.

GENERAL SANITARY PRECAUTIONS TO BE TAKEN DURING A CRUISE.

Toilets, bilges, and similar portions of the vessel liable to harbor infection should be disinfected (5 per cent carbolic) and frequently cleansed.

Free ventilation and rigorous cleanliness should be maintained in all portions of the vessel and measures taken to destroy rats, mice, fleas, flies, mosquitoes, and all vermin.

A patient sick of a communicable disease such as plague, yellow fever, smallpox, cholera, typhus, measles, scarlet fever, diphtheria, etc., should be isolated and one member of the crew detailed for his care and comfort, who, if practicable, should be immune to the disease.

Communication between the patient or his nurse and other persons on board should be reduced to a minimum.

Used clothing, body linen, and bedding of the patient and nurse should be immersed in boiling water or in a disinfecting solution (bichlorid of mercury, 1–500).

The compartment from which the patient was removed should be disinfected and thoroughly cleansed. Articles liable to convey infection should remain in the compartments during the disinfection when gaseous (formaldehyd, sulphur, or steam) disinfection is used.

A sanitary inspection of the entire vessel should be made daily.

The dead should be enveloped in a sheet saturated with 1–500 bichlorid of mercury without previous washing of the body and at once buried at sea or placed in a coffin hermetically sealed.

A complete clinical record should be kept of all cases of sickness on board and the record delivered to the quarantine officer at the port of arrival.

DISINFECTION.

Disinfecting agents are roughly of three classes—(*a*) physical, by which we mean exposure to sunlight, burning, boiling, and use of steam; (*b*) chemical gases, of which we will only consider sulphur dioxid and formaldehyd; and (*c*) chemical solutions, as bichlorid of mercury, carbolic acid, and formalin.

Physical disinfectants.—Sunlight is of negative value in this present discussion, other than as an aid in maintaining general hygienic

well-being. Burning is of absolute efficiency, but is seldom practicable on account of expense. Boiling and use of live steam both are practically certain of efficiency if continued for one-half hour.

Chemical gases—Sulphur dioxid.—This a good insecticide, but a poor germicide. Use this in exterminating rats, mosquitoes, flies, lice, and other vermin; also for disinfection after bacterial infection, as smallpox, diphtheria, etc., provided the formaldehyd is not available.

Almost any kind or size of iron pot will serve in which to generate the fumes. The ordinary sugar pan, 2½ feet in diameter, is useful in disinfecting the hold of a vessel or a large compartment, the number of pans to be determined by the number of thousand cubic feet of area to be fumigated. Not more than 30 pounds of sulphur should be placed in each pot. For the fumigation of staterooms and the like small iron cooking vessels are suitable. Each pot should always be standing in a tub of water.

The tubs should be made of wood or compressed paper, as tubs made of galvanized iron or composition metal go to pieces rapidly through rust or breaks in the seams. The pots should never be placed on the floor of a compartment or bottom of the hold of a vessel. In compartments or storerooms they should be placed upon tables or chairs, and in the holds of vessels either upon piles of ballast or cargo or upon boxes. The sulphur should always be ground or mashed into a powder before being placed in the pots, and should be piled around the sides of the pot with a central depression or crater. Alcohol should always be used for lighting sulphur, poured into the above crater and ignited, although a hot coal will answer the purpose.

One pound of sulphur burned in a space containing 1,000 cubic feet will produce 1 per cent of the gas. Five pounds of sulphur burned in a space containing 1,000 cubic feet will produce 5 per cent of the gas.

Time of exposure varies from 6 hours for extermination of vermin, to 24 hours for bacterial infection, using 5 pounds per 1,000 cubic feet.

In computing the capacity of the hold of a vessel for the purpose of determining the number of thousand cubic feet of space therein, and therefore the number of pounds of sulphur which will be required to produce a 5 per cent volume of the gas, the net tonnage of the vessel shows in a general way the cubic capacity of her cargo-carrying space. Ten net tons will represent 1,000 cubic feet of space; therefore, for every 10 net tons 5 pounds of sulphur must be used to get the average 5 per cent volume strength of sulphur gas. The capacity of the living apartments, storerooms, and the like had best be figured on separately.

In fumigating with sulphur gas all spaces must be made air-tight. In fumigating the holds of vessels the hatches should be covered over with their regular waterproof tarpaulins and tightly battened down, leaving a small vent for the escape of the sulphur. All air slits, scuttles, and chain ports should be closed. The doors should be sealed by means of strips of paper pasted over the cracks left between the frame and the door.

Formaldehyd gas.—This is efficient against bacteria, but fails to kill vermin. Four commonly used methods of generating this gas will be mentioned, but only the last described in detail as being commonly available as well as efficient:

(*a*) Autoclave under pressure, forcing gas into a compartment, 3 to 12 hours exposure.

(*b*) Lamp generator, 6 to 18 hours exposure.

(*c*) Spraying liquid formalin (solution of the gas in water, which is commonly available) over sheets hung in a compartment; exposure 12 to 24 hours; and is not strongly efficient.

(*d*) Chemical generation of the gas:

(1) Formalin-permanganate method: When formalin is poured over crystals of permanganate of potash, a vigorous reaction takes place, and a large quantity of formaldehyd gas is liberated. Reaction is over in a short time (five minutes), and if a proper proportion of substances is used the residue is almost dry. The proportion is 2 pints of formalin to 1 pound of permanganate of potash. One pint of formalin for 1,000 cubic feet of space should be used if the temperature is 60° F. or less; a less amount may be used for higher temperatures, but not less than 10 ounces per 1,000 cubic feet. This method is extremely efficient on account of the rapidity with which the gas is liberated, but the danger of fire should be guarded against, as the formaldehyd gas, being in a comparatively dry state, is inflammable in the presence of a light, such as lighted matches, lamp, etc.

(2) Formalin-aluminum sulphate-lime method: Add 1 part sulphate of aluminum to 2 parts of hot water. One part of this solution is added to 2 parts of formalin (both by volume). One part of this second solution is poured on 2 parts of unslaked lime (quicklime), broken into small particles. The process of liberation of formaldehyd gas is completed in about 20 minutes. This method is not as efficient as the previous one, as less than half the amount of formaldehyd gas is yielded from the same amount of formalin.

Two pints of formalin per 1,000 cubic feet of space should be used if the temperature is 60° F. or less.

Fire should be guarded against, but this danger is decidedly less than in the permanganate process on account of the large amount of water vapor coming off with the gas.

The stated times of exposure to sulphur dioxid and formaldehyd are sufficient to destroy bacterial infection due to nonspore-bearing organisms, providing that the infection is present on the surface. If the room is of peculiar construction, so as to impede the diffusion of the gas, or if the room is a dirty one, or on account of any other condition rendering the germicidal action of the gas more difficult, the time of exposure should be proportionately increased, or supplanted by other methods.

Chemical solutions—Bichlorid of mercury.—Bichlorid of mercury is a disinfectant of undoubted potency and wide range of applicability. It can not be depended upon to penetrate substances in the presence of albuminous matter. It should be used in solutions of 1–500 to 1–2,000. The solution of bichlorid of mercury may be increased by using sea water for the solution, or by adding 2 parts per 1,000 of sodium or ammonium chlorid to the water employed.

Carbolic acid.—Carbolic acid in the strength of 5 per cent may be substituted for the bichlorid of mercury, and should be employed in the disinfection of the cabins and living apartments of ships to obviate injurious action on polished metals, bright work, etc.

Formalin.—Formalin containing 40 per cent of formaldehyd gas may be used in a 5 per cent solution as a substitute for bichlorid of mercury or carbolic acid, and is useful for the disinfection of surfaces, dejecta, fabrics, and a great variety of objects, owing to its noninjurious character.

APPLICATION OF DISINFECTANTS IN QUARANTINE WORK.

Holds of iron vessels, empty, shall be disinfected by either—

(*a*) Sulphur dioxid generated by burning sulphur 5 pounds per 1,000 cubic feet of air space, sufficient moisture being present; time of exposure, 24 hours.

(*b*) Washing with a solution of bichlorid of mercury, 1–1,000.

Holds of wooden vessels, empty, shall be disinfected by—

(*a*) Sulphur dioxid in the manner described above, followed by—

(*b*) Washing with a solution of bichlorid of mercury.

Holds of cargo vessels, when cargo can not be removed, shall be disinfected in so far as possible by sulphur dioxid not less than 4 per cent volume strength, and where possible this should be generated from a furnace to minimize danger of fire in cargo.

Living compartments of vessels shall be disinfected by one or more of the following methods:

(*a*) Sulphur dioxid, the destructive action of the gas on property being borne in mind.

(*b*) Formaldehyd gas.

(*c*) Washing with solution of bichlorid of mercury 1–1,000, or 5 per cent solution of formalin, or 5 per cent solution of carbolic acid, preference being given to carbolic acid for application to polished woods, bright metals, and other objects injured by metallic salts.

Living compartments in bad sanitary condition must be disinfected by method (*a*), followed by method (*c*).

Mattresses, pillows, and heavy fabrics are to be disinfected by—

(*a*) Boiling.

(*b*) Flowing steam—*i. e.*, steam not under pressure.

(*c*) Steam under pressure.

(*d*) Steam in a special apparatus with vacuum attachment.

Clothing, fabrics, textiles, curtains, hangings, etc., may be treated by either of the above methods from (*a*) to (*d*), inclusive, as circumstances may demand, or by formaldehyd gas or sulphur dioxid where the article is of a character which will not be damaged by sulphur dioxid.

Articles injured by steam, such as leather, furs, skins, rubber, trunks, valises, hats and caps, bound books, silks, and fine woolens should not be disinfected by steam. Such articles should be disinfected by formaldehyd gas or by any of the agents which may be applicable thereto. Those which will be injured by wetting should be disinfected by a gaseous agent.

Clothing, textiles, and baggage, clean and in good condition, but suspected of infection, can be efficiently and least injuriously disinfected by formaldehyd gas, generated by one of the methods prescribed.

Textiles which are soiled with the discharges of the sick, or presumably are deeply infected, must be disinfected by—

(*a*) Boiling.

(*b*) Steam.

(*c*) Immersion in one of the germicidal solutions.

Cooking and eating utensils are always to be disinfected by immersion in boiling water or by steam.

The expenses for the disinfection, fumigation, etc., of vessels, and for ridding from vermin, are not chargeable to the Bureau of Medicine and Surgery.

QUARANTINE PROCEDURE.

For practical purposes and with a few minor exceptions the maritime quarantine service of our seaboard is under the Public Health Service of the Treasury Department. At some ports the local authorities have additional regulations and requirements, such as those making partially quarantinable various other contagious diseases,

and the master must be prepared to give full consideration to and cooperation with such regulations and authorities.

The following is quoted from the Quarantine Laws and Regulations, Treasury Department, 1910:

146. Vessels of the Navy may be granted the hereinafter-stated exemptions from quarantine regulations, but are subject to quarantine inspection upon arrival at a port of the United States.

147. The certificates of the medical officers of the Navy as to the sanitary history and condition of a vessel and its personnel may be accepted for naval vessels by the quarantine officer boarding the vessel in lieu of an actual inspection.

148. Vessels of the Navy having entered the harbors of infected ports, but having held no communication which is liable to convey infection, may be exempted from the disinfection and detention imposed on merchant vessels from such ports.

On entering port, in addition to the bills of health, the master of the ship should be prepared to furnish the quarantine officer, if required, with a statement relative to the health conditions prevailing on board ship. Certain diseases of a contagious or infectious character, not included among the quarantinable diseases under the Quarantine Laws and Regulations of the Treasury Department, such as measles, diphtheria, cerebrospinal meningitis, etc., will ordinarily be viewed by local or State authorities as constituting quarantinable diseases and their presence on board should be considered as rendering the vessel subject to quarantine restrictions. All such diseases should be fully reported to the inspecting health officer.

If, in the opinion of the quarantine officer, a pilot has been exposed to infection upon boarding a vessel with quarantinable disease on board, he may be detained in quarantine a sufficient length of time to cover the period of incubation of the disease in question. (Quarantine Laws and Regulations, 1910.)

Jurisdiction in matters of sanitation and quarantine in the waters of Colon and Panama is exercised by the United States authorities of the Canal Zone, and in the case of vessels entering the ports of Colon and Panama. In other ports in the Canal Zone original bills of health in duplicate are required to be obtained by masters of vessels clearing from any foreign port or any port in the possessions or other dependencies of the United States. (Executive Order No. 1761, of Apr. 15, 1913.)

BILLS OF HEALTH.

Naval vessels clearing from one United States port for another United States port do not ordinarily procure a bill of health for

presentation at the port of arrival. Local or State authorities at the port of arrival may, however, require the exhibition of a bill of health under special circumstances, such as when some epidemic disease exists at the port of departure, and under such circumstances it is advisable for the medical officer to procure a bill of health.

In certain ports of the United States both National and State quarantine regulations are enforced, so that pratique may have to be claimed and obtained from both. Quarantine expenses (bills of health and pratique) are a charge against "Pay, Miscellaneous." However, bills of health for naval vessels and indorsements by consular officers are usually extended gratis. (For decision as to the liability of a naval vessel for payment of quarantine charges growing out of a State law, see Official Opinions of the Attorney General, 1906, vol. 25, p. 234.)

A naval vessel from a United States port to a port in the Canal Zone or the possessions of other dependencies of the United States should secure a bill of health from the customhouse, or the port authorities, or other official. (In some ports a medical officer of the Public Health Service is authorized to issue bills of health.)

Naval vessels sailing from a United States port to a foreign port should always procure a bill of health from the proper authorities and have it viséed by the consular or other representative of the country or countries of ports of call, if such ports can be determined upon prior to sailing. It is sometimes advisable to secure bills of health for several ports to which the vessel might go, when definite information of the exact destination is not procurable. A naval vessel sailing from a foreign port to another foreign port should likewise procure and have viséed a bill of health.

A vessel leaving a foreign port for a home port should obtain a bill of health from the port official and also a United States consular bill of health at a port where the issue of consular bills of health is customary.

The following data are usually required when applying for a bill of health: Name of vessel; tonnage; number of guns; name of captain; the number of souls on board.

Supplemental bills of health (if call is made at some intermediate port or ports) should be obtained and be properly viséed.

Vessels clearing from a foreign port or from any port in the possessions or other dependencies of the United States for any port in the United States, its possessions or other dependencies, and entering or calling at intermediate ports, must procure at all said ports a supplemental bill of health in duplicate signed by the proper officer or officers of the United States, as provided in the law. If a quarantinable disease has appeared on board the vessel after leaving the original port of departure, or other circumstances presumably render the vessel

infected, the supplemental bill of health should be withheld until such sanitary measures have been taken as are necessary. (Quarantine Laws and Regulations, 1910.)

Bills of health for naval vessels in the fleet may be procured for the fleet as a whole by the fleet surgeon if no diversion of individual ships is contemplated. Bills of health for individual ships should always be procured, however, in the absence of orders to the contrary.

GLOSSARY.

ABDOMEN.—That part of the body which lies below the thorax or chest and contains the stomach and other viscera; the belly.

ANTIDOTE.—A medicine given to counteract the effects of poison.

ANTISEPTIC.—A substance which prevents or retards the growth of organisms, especially of the septic variety, thus hindering putrefaction.

ASPHYXIA.—Suspension of respiration and animation; suffocation, as in drowning or from breathing poisonous gases.

AUTOCLAVE.—An apparatus for sterilization by steam under pressure.

BUBONIC.—Relating in any way to a bubo. B. plague, the most common form of the plague, characterized by the occurrence of buboes in the groin or armpit.

CATHARTIC.—An agent causing active movements of the bowels.

CATHETER.—A slender tubular instrument, generally of soft rubber or of silver, used chiefly for passing through urethra into bladder to draw off the urine.

CAUTERIZE.—To burn or sear with caustics or a hot iron.

CLINICAL.—Relating to the course of the disease. C. thermometer, a self-registering thermometer for taking the bodily temperature.

CONTAGION.—The communication of disease from person to person by contact, direct or indirect.

CORYZA.—Acute rhinitis; cold in the head.

DEJECTA.—The matter passed from the bowel; feces.

DELIRIUM.—Mental derangement, characterized by incoherent and wandering talk, illusions, etc.

DISINFECTANT.—A substance used to destroy the germs of infectious and contagious diseases.

DISINFECTION.—The act or process of disinfecting; purification from infecting matter.

EMETIC.—An agent which causes vomiting.

ENDEMIC.—The constant prevalence of a disease in a community, as distinguished from an epidemic.

ENEMA.—A fluid injected into the rectum for the purpose of clearing out the bowel, or of administering drugs or food.

EPIDEMIC.—The extensive prevalence in a community of a disease brought from without, or a temporary increase in number of cases of an endemic disease.

ERUPTION.—A breaking out, especially the appearance of lesions on the skin; a rash.

FECES.—The matter discharged from the bowel during defecation.

FUMIGATION.—The destruction of germs by means of some disinfecting vapor, as that of sulphur or formaldehyd.

FUNGUS.—A cellular vegetable organism feeding on organic matter; such are mushrooms, yeasts, molds, and bacteria.

GERM.—A microbe or pathogenic cell.

GERMICIDE.—An agent which is destructive to germs or microbes.

IMMOBILIZATION.—The act of rendering a part immovable or of preventing all possibility of movement in a part; especially applied to fractured bones.

INFECTION.—Communication of disease, as by entrance of pathogenic germs into an organism in any manner.

INSECTICIDE.—An agent which kills insects.

LAXATIVE.—A mild cathartic, a remedy that moves the bowels slightly without pain or violent action.

MACERATION.—Softening by the action of a liquid.

MICROBE.—A microscopic organism, especially a bacterium.

MICROORGANISM.—Bacillus, bacterium, microbe, germ.

PALPITATION.—Forcible pulsation of the heart, with or without irregularity.

PATHOGENIC.—Productive of disease.

PLEURA.—A thin membrane which covers the inside of the thorax on both sides, and also invests either lung.

PNEUMONIC.—Relating to pneumonia. P. plague, a particularly fatal form, with marked lung involvement.

PRATIQUE.—A license or permission granted by the authorities of a port to the master of a vessel, especially after sanitary inspection or quarantine, to hold communication with the shore.

PROPHYLAXIS.—The prevention of disease.

PURGATIVE, PURGE.—A severe cathartic, a remedy that moves the bowels actively.

PURULENT.—Consisting of pus or matter.

PUS.—The matter from a sore.

PUSTULE.—A small circumscribed elevation on the skin, containing pus.

RABIES.—A disease affecting certain animals, especially dogs, from which hydrophobia is communicated.

RASH.—An eruption on the skin.

RECTUM.—The lowest part of the large intestine opening at the anus.

SANITATION.—The employment of measures designed to promote health and prevent disease.

SEDATIVE.—A medicine which allays irritation and relieves pain.

SPATULA.—A broad instrument like a knife with blunt edges for spreading ointments.

STERILE.—Free from pathogenic bacteria or other microorganisms; aseptic.

STIMULANT.—A medicine having power to excite organic action or to increase the vital activity of an organ.

SUTURE.—A stitch used to draw together the lips of a wound.

TOURNIQUET.—An instrument for stopping the flow of blood through an artery by means of strong compression.

TOXIN.—A poisonous substance of undetermined chemical nature, elaborated during the growth of pathogenic microorganisms.

URETHRA.—The canal by which the urine is conducted from the bladder and discharged.

URINATION.—The discharging of the contents of the bladder.

UVULA.—The small, fleshy body which hangs from the soft palate over the root of the tongue.

VARICOSE.—Exhibiting a morbid enlargement or dilation, knotty and irregular in shape, as often seen in the veins of the lower extremities.

VENEREAL.—Pertaining to sexual intercourse.

VIRUS.—Contagious poisonous matter, as of smallpox or hydrophobia.

INDEX.

	Page.
Abscess	56
Acid:	
carbolic, disinfection by	86, 87
poisoning by	18
strong, poisoning by	18
Air, fresh	36
Alkalis, poisoning by	18
Arm, fracture of	29
Arsenic, poisoning by	19
Arterial hemorrhage	23
Arteries, main, location of	23
Back, fracture of	29
Bandaging	24
Bichlorid of mercury:	
disinfection by	86, 87
poisoning by	18
Bills of health	88
Bites from:	
dogs or cats	16
snakes	17
Bleb	35
Boil	57
Boiling, disinfection by	87
Box, medicine, contents of	7
Bruises	25
Bubo	32
Bulla	35
Burns	19
Capillary oozing	23
Carbolic acid:	
disinfection by	86, 87
poisoning by	18
Carbuncle	57
Cats, bites from	16
Chancroid	32
Chemical:	
disinfectants	84
gases, disinfection by	84
Chicken-pox	35, 38
Chills and fever	45
Cholera	35, 47, 78, 82
Chordee	31
Clap	30
Clinical thermometer	34

	Page.
Cold:	
effects of	20
sores	58
Colds and coughs	51
Colic	47
Collar bone, fracture of	29
Consumption	52
Continued fever	34
Contusions	25
Cough, whooping	35
Coughs and colds	51
Crisis as termination of fever	34
Deaths	75
Delirium tremens	53
Dengue	35
Dental treatment	74
Diarrhea	49
Diet	36
Diphtheria	35, 43
Diseases:	
infectious, general treatment of	36
of the—	
eye	55
respiratory system	50
skin	56
stomach and intestines	47
special	34
venereal	30
Disinfectants	83, 86
application of	86
chemical	84
physical	83
Disinfection	36, 77, 83
by—	
bichlorid of mercury	86, 87
boiling	87
carbolic acid	86, 87
chemical gases	86
formaldehyd gas	85–87
formalin	86, 87
steam	87
sulphur	84, 86, 87
Dislocations	27
Dogs, bites from	16
Dressings, sterilization of	27
Drowned, resuscitation of the apparently	14
Drowning, method of handling, in water	15
Drugs	38
Dysentery	35, 49
Earache	56
Electric shock, resuscitation from	16
Emergency measures	13
Epileptic fits	17

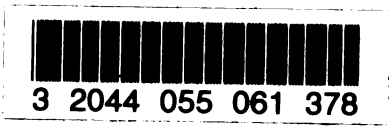
	Page.
Expenses:	
funeral	75
while in hospital	71
Eye:	
diseases of	55
inflammation of	55
Fainting	17
Feet, foul-smelling	68
Fever:	
continued	34
infectious	35
intermittent	34
malarial	35, 45
Malta	35, 44
Mediterranean	35, 44
remittent	34
scarlet	35, 39
typhoid	35, 42
typhus	35, 41, 78, 82
yellow	35, 45, 78, 81
Fevers	34
terminations of	34
types of	34
Finger, fracture of	30
First-aid	13
Fits, epileptic	17
Foot, fracture of	30
Forearm, fracture of	30
Formaldehyd gas, disinfection by	85, 86, 87
Formalin, disinfection by	86, 87
Fractures	28
special	29
Freezing	20
Fresh air	36
Frostbite	21
Funeral expenses	75
Gas poisoning, resuscitation from	16
German measles	35, 41
Gonorrhea	30
Gonorrheal inflammation of eye	55
Government Hospital for the Insane	72
Grip	44
Hand, fracture of	30
Headache	54
Health, bills of	88
Heat:	
exhaustion	54
stroke	54
Hemorrhage	22
Hernia	21
Heroin, poisoning by	18
Hives	58

	Page.
Hospital:	
expenses while in	71
facilities	70
for the Insane, Government	72
pay while in	71
Hospitals:	
naval	70
Public Health Service	70
Hydrochloric acid, poisoning by	18
Hydrophobia, prevention of	16
Hydrotherapy	36
Impetigo	59
Incubation period	35, 77, 78
Infection, prevention of spread of	36
Infectious:	
diseases, general treatment of	36
fever	35
Inflammation of:	
eye	55
skin, due to external irritants	60
Influenza	35, 44
Insects, stings by	17
Insensibility	17
Instruments, sterilization of	27
Intermittent fever	34
Internal hemorrhage	23
Intestines and stomach, diseases of	47
Isolation	36
period	35
Itch	62
Jaw, fracture of	29
Kneecap, fracture of	30
Laudanum, poisoning by	18
Leg, fracture of	30
Leprosy	78
Lice	64
Lye, poisoning by	18
Lysis as termination of fever	34
Macules	35
Malaria	35, 45
Malta fever	35, 44
Measles	35, 41
German	35, 41
Medical survey	73
Medicine box, contents of	7
Medicines, directions for	8
Mediterranean fever	35, 44
Mercury, bichlorid of:	
disinfection by	86, 87
poisoning by	18
Morphin, poisoning by	18
Mumps	35, 43

	Page.
Naval:	
hospital fund	72
hospitals	70
medical supply depots	11
Nettle rash	65
Nitric acid, poisoning by	18
Nose:	
bleeding	23
fracture of	29
Notice, ration	71
Nursing	38
Nux vomica, poisoning by	19
Opium, poisoning by	18
Orchitis	32
Papule	35
Paraphimosis	31
Paregoric, poisoning by	18
Paris green, poisoning by	19
Pay while in hospital	71
Phimosis	31
Physical disinfectants	83
Pimple	57
Plague	35, 47, 78
Pleurisy	52
Pneumonia	51
Poisoning:	
by—	
alkalis	18
arsenic	19
bichlorid of mercury	18
carbolic acid	18
heroin	18
hydrochloric acid	18
laudanum	18
lye	18
morphin	18
nitric acid	18
nux vomica	19
opium	18
paregoric	18
Paris green	19
ptomaine	19
rough-on-rats	19
strong acids	18
strychnin	19
sulphuric acid	18
unknown poison	18
gas, resuscitation from	16
prevention of	17
Poisons	17
Precautions, sanitary	83
Prevention of infection	36
Procedure, quarantine	87

Page.
Ptomaines, poisoning by 19
Public Health Service hospitals 70
Pustule 36
Quarantine 77
period 35, 77, 78
procedure 87
use of disinfectants in 86
Rat:
extermination 79
guards 80
Ration notice 71
Remittent fever 34
Requisitions:
for medical stores 11
forms 12
Rescuing the drowning 15
Respiratory system, diseases of 50
Rest 36
Resuscitation from:
drowning 14
electric shock 16
gas poisoning 16
Rib, fracture of 29
Ringworm 66
Roller bandage 24
Rough-on-rats, poisoning by 19
Rules for first-aid 13
Rupture 21
Sanitary precautions 83
Scab 36
Scabies 62
Scalds 19
Scarlet fever 35, 39
Schäfer method of artificial respiration 14
Shock 19
electric, resuscitation from 16
Skin diseases, common 56
Skull, fracture of 29
Smallpox 35, 40, 78, 81
Snake bites 17
Sore throat 50
Special diseases 34
Splints 28
Sprains 21
Strains 21
Syphilis 32
Steam, disinfection by 87
Sterilization of dressings and instruments 27
Stings by insects 17
Stomach and intestines, diseases of 47
Stricture of urethra 32
Stroke:
heat 54
sun 54

	Page.
Strychnin, poisoning by	19
Stye	55
Sulphur:	
dioxid	84, 86, 87
disinfection by	84, 86, 87
Sulphuric acid, poisoning by	18
Sunstroke	53
Supplies:	
medical and surgical	7
requisitions for	11
Supply depots, naval medical	11
Survey, medical	73
Temperature, taking of	34
Testicle, swollen	32
Tetter	65
Thermometer, clinical	34
Thigh, fracture of	30
Throat, sore	50
Tonsillitis	50
Toothache	56
Treatment of infectious diseases	36
Triangular bandage	24
Tuberculosis	52
Typhoid fever	35, 42
Typhus fever	35, 41, 78, 82
Ulcer	67
Unconsciousness	17
Urethra, stricture of	32
Venereal diseases	30
pay while in hospital with	71
Venous hemorrhage	23
Vermin	64
Vesicle	35
Whooping cough	35
Wounds	25
Wrist, fracture of	30
Yellow fever	35, 45, 78, 81


3 2044 055 061 378

This book should be returned to the Library on or before the last date stamped below.

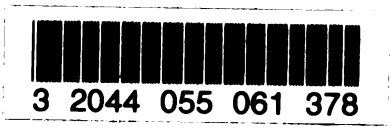
A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

WIDENER

MAY 0 8 2001

BOOK DUE


3 2044 055 061 378

This book should be returned to the Library on or before the last date stamped below.

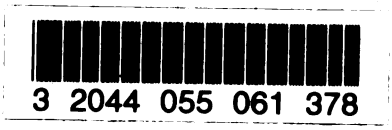
A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

WIDENER

MAY 0 8 2001

BOOK DUE


3 2044 055 061 378

This book should be returned to the Library on or before the last date stamped below.

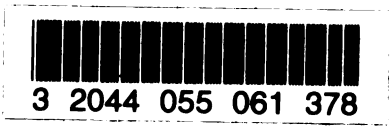
A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

WIDENER

MAY 0 8 2001

BOOK DUE


3 2044 055 061 378

This book should be returned to the Library on or before the last date stamped below.

A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

WIDENER

MAY 0 8 2001

BOOK DUE